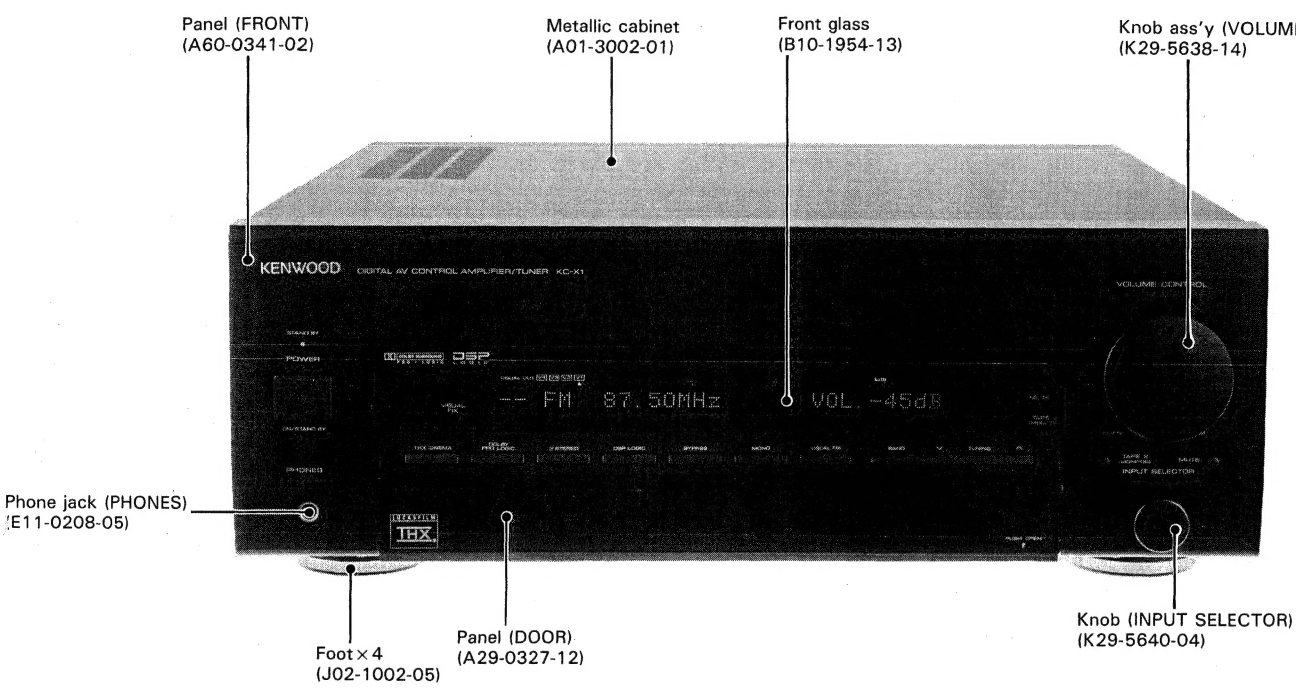
DIGITAL AV CONTROL AMPLIFIER/TUNER

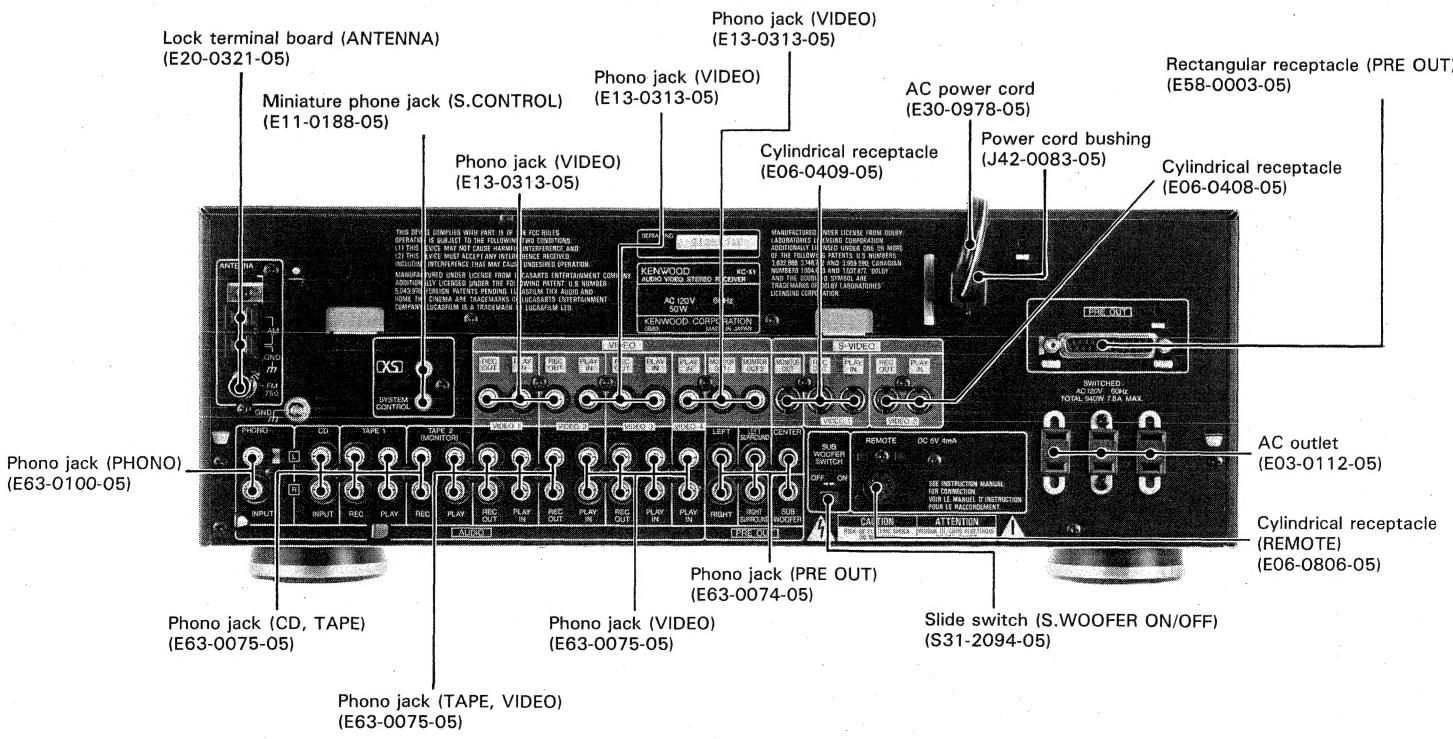
KC-X1

SERVICE MANUAL

KENWOOD

B51-4703-00 (MC) 2088





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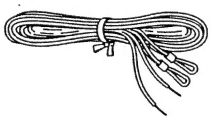
ACCESSORIES

FM indoor antenna 1
(T90-0176-05)



AM loop antenna 1
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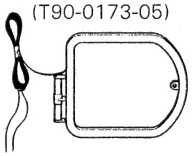

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antenna adaptor 1
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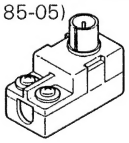

Loop antenna stand 1
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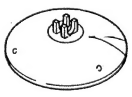
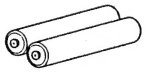


Batteries
("R03" or "AAA") 2



Remote control unit 1
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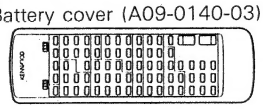
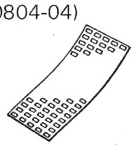
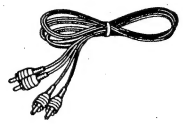
Battery cover (A09-0140-03)



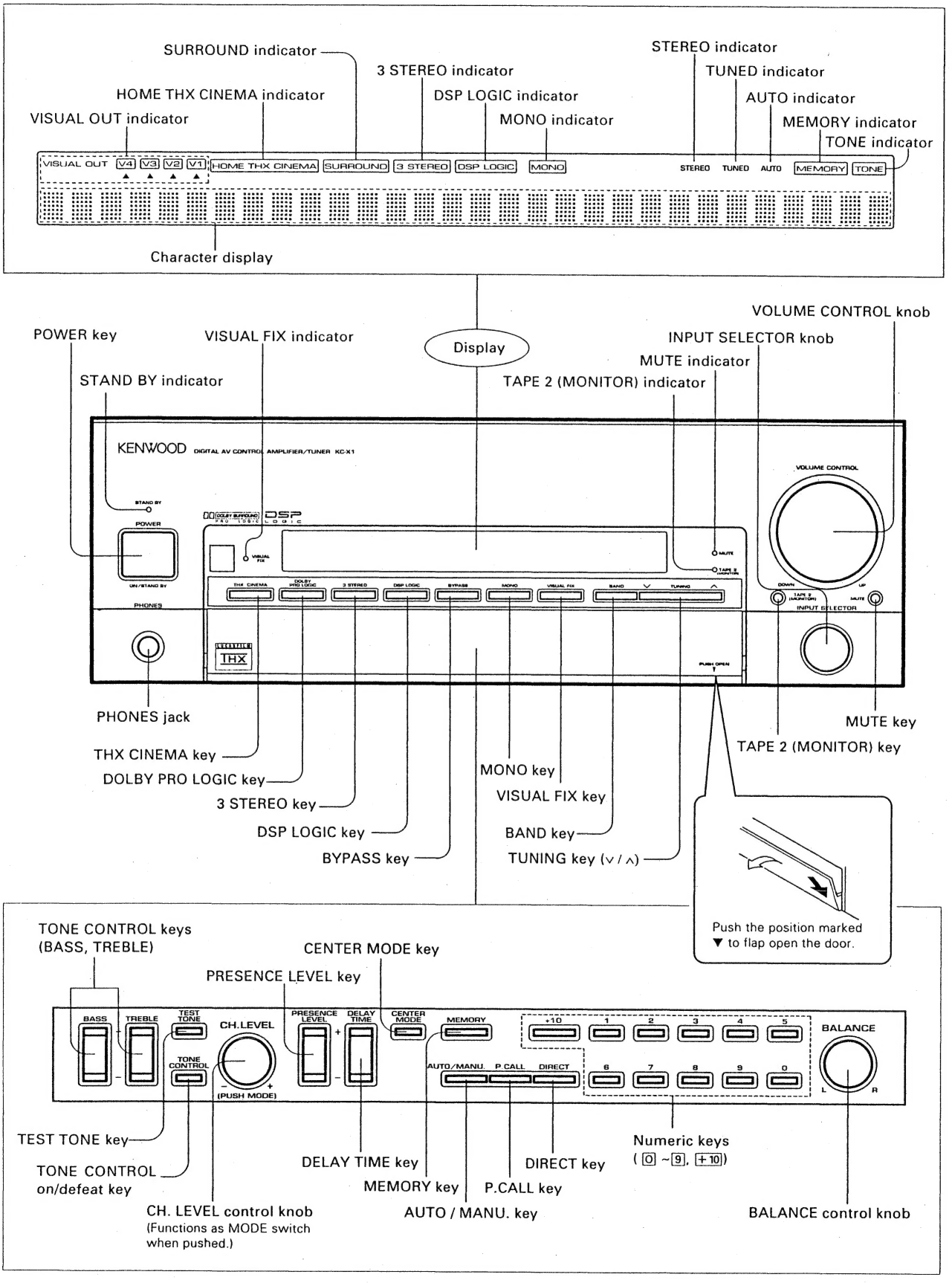
Overlay sheet 1
(G16-0804-04)



Audio cord 3
(E30-2293-05)



CONTROLS AND INDICATORS



CONTROLS AND INDICATORS

■ Names and functions of remote control keys (AUDIO mode)

To remote control KENWOOD components connected to this unit via the system control cords, set the LEARN/USE switch and AUDIO/AUX switch as shown in the illustrations below.

LEARN/USE switch LEARN O TRANSMIT
LEARN USE
Set to "USE".

AUDIO/AUX switch AUDIO AUX
Set to "AUDIO".

LEARN/TRANSMIT indicator
The LED lights when a remote control signal is transmitted by pressing a key and during programming a remote control signal from another remote control unit.

POWER key
Press to turn the power of the main unit ON / OFF.

Cassette deck operation keys
With double cassette deck:
The TAPE A keys control deck A and TAPE B keys control deck B.

With single cassette deck:
Use the TAPE B keys to control the deck. (The TAPE A keys do not function.)

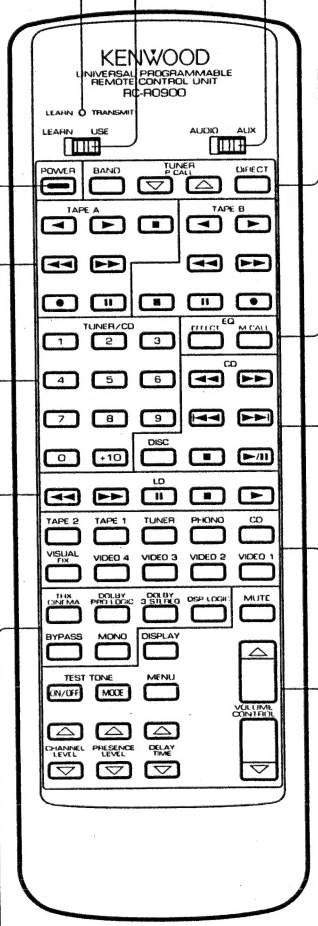
* When this remote control unit is used to operate the cassette deck, connect a system control cord between it and the main unit, and its output to the TAPE 1 jacks of the main unit.

Numeric keys
When listening to CD:
These function as the numeric keys of the CD player.
When listening to radio:
These function as the numeric keys of the tuner.

LD player operation keys
These keys can control the playback, pause, stop and search of the LD player.

* Only when operating these keys, point the remote control unit toward the LD player.
* Do not connect the LD player using a system control cord.

Surround operation keys
THX CINEMA key
DOLBY PRO LOGIC key
DOLBY 3 STEREO key
MONO key
DSP LOGIC key
Select the surround mode.
BYPASS key: Press to cancel the surround effect.



Tuner operation keys
BAND key :Press to select the frequency band.
P.CALL keys:Press to recall the preset stations in sequence.
DIRECT key :Use together with the numeric keys to specify a station to be recalled.

Graphic equalizer operation keys
EFFECT key : Press to turn the graphic equalizer ON/OFF.
M.CALL key: Press to recall preset equalizer patterns in sequence.

CD player operation keys
These keys can control the playback, pause, stop, search and skip of the CD player.

When a multi-disc player is used, the kind of disc can be selected with the DISC key.

Input selector keys
Press one of these keys to select a desired input source.

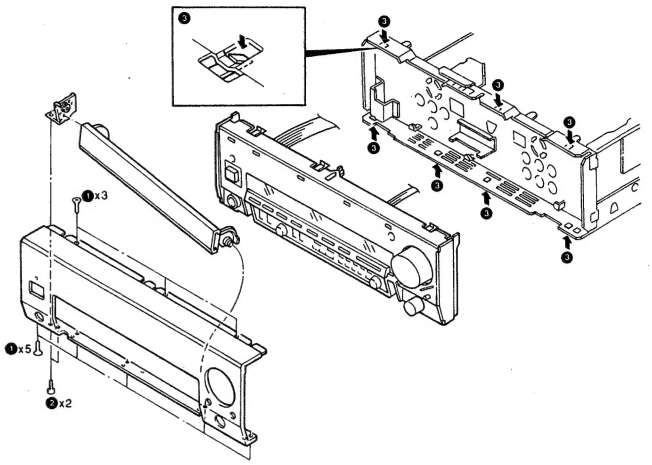
When the VISUAL FIX key is pressed, the current video input is fixed, so that only the audio input can be selected from other input sources.

Volume and other control keys
MUTE key:
Mutes the playback sound temporarily.
VOLUME CONTROL keys;
Adjusts the overall volume of the played sound.
DISPLAY key:
Press to switch the content of the display on the main unit.
(Input source display/surround mode display)
MENU key:
Press to display the menu on the TV monitor screen.
TEST TONE ON/OFF key
TEST TONE MODE key
CHANNEL LEVEL keys
PRESENCE LEVEL keys
Use during surround play for various setting operations.

DISASSEMBLY FOR REPAIR

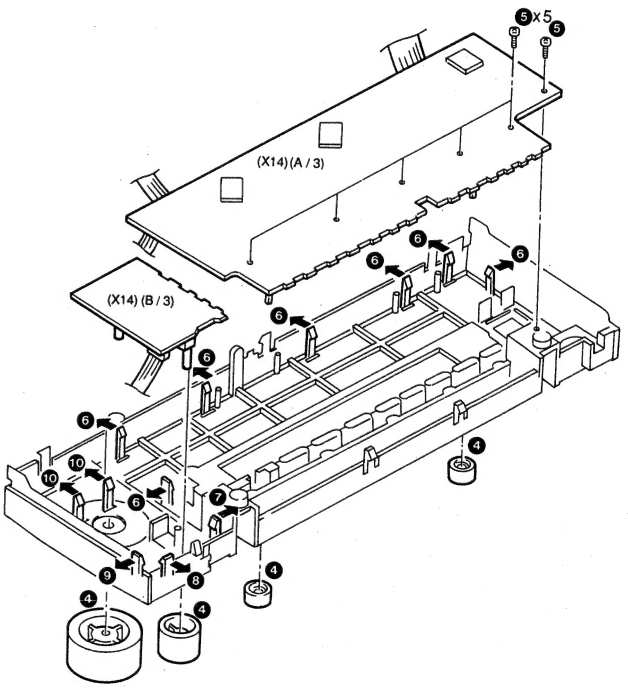
Removing the panel and panel escutcheon

1. Remove the eight screws (❶), then detach the front panel.
2. Remove the two screws (❷), then detach the lower door panel.
3. Detach the panel escutcheon by disengaging the seven hooks (❸).



Removing the (X14) (A/3) and (X14) (B/3) boards

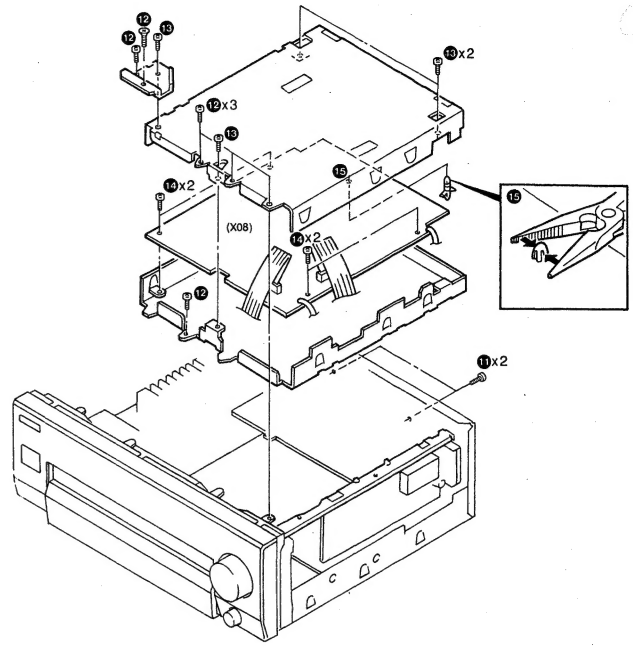
1. Remove the four knobs (❹).
2. Remove the six screws (❺).
3. Detach the FL display board (X14) (A/3) by disengaging the seven hooks (❻).
4. Detach the Volume selector board (X14) (B/3) by disengaging the five hooks in order of (❼), (❽), (❾) then (❿).



DISASSEMBLY FOR REPAIR

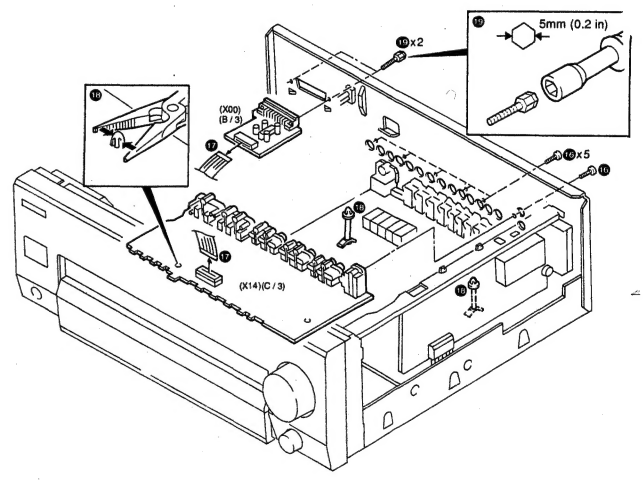
Removing the (X08) board

1. Remove the two screws (⓫).
2. Remove the six screws (⓬), then lift the shield plate.
3. Remove the four screws (⓭), then detach the shield plate reinforcing hardware and upper shield plate.
4. Remove the four screws (⓮).
5. Remove the unit holder (⓯), then detach the board (X08).



Removing the (X14) (C/3) and (X00) (B/3) boards

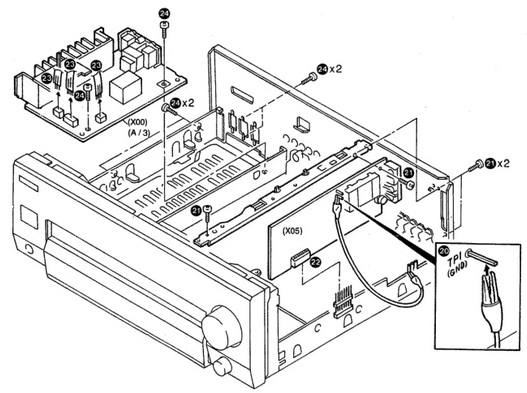
1. Remove the six screws (⓰).
2. Unplug the two connectors (⓱).
3. Remove the two unit holders (⓲), then detach the Video board (X14) (C/3).
4. Remove the two hex-head screws (⓳) using a box driver (⟶⬡⟵ 5 mm (0.2 in.)), then detach the DB25 terminal board (X00) (B/3).



DISASSEMBLY FOR REPAIR

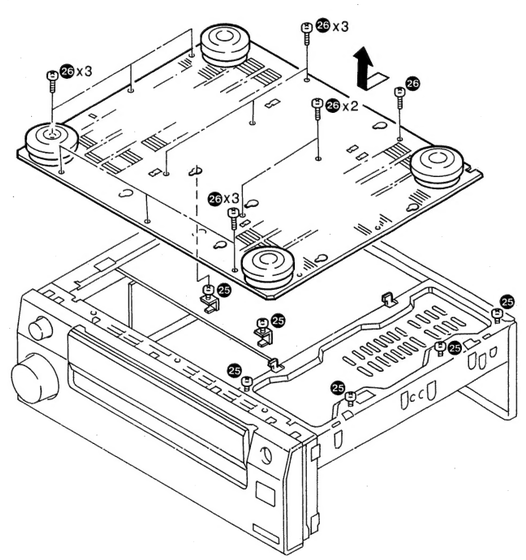
Removing the (X00) (A/3) and (X05) boards

1. Attach the clips of cord to TP1 and the chassis (⑳).
2. Remove the four screws (㉑), then detach the frame.
3. Unplug the connector (㉒), then detach the Tuner board (X05).
4. Unplug the three connectors (㉓).
5. Remove the six screws (㉔), then detach the Power board (X00) (A/3).



Removing the bottom panel

1. Loosen the six screws (㉕).
2. Remove the twelve screws (㉖), and slide the bottom panel slightly toward the front panel side.



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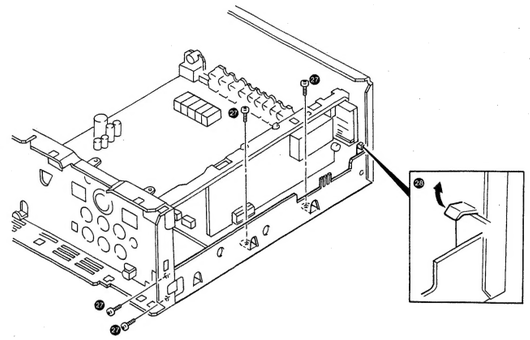
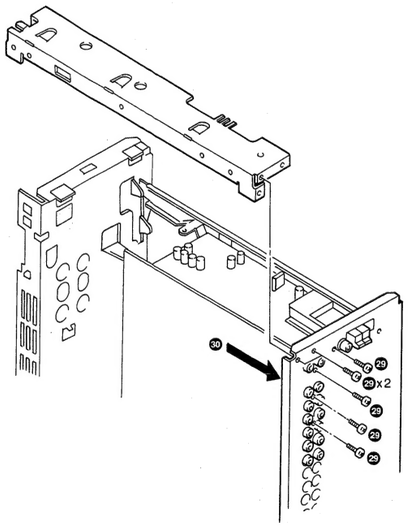
DISASSEMBLY FOR REPAIR

Removing the bottom right frame

1. Remove the four screws (㉗).
2. Stand up the claw (㉘) on the bottom right of the rear panel.



3. Place the set with the right side panel facing up, and remove the six screws (㉙).
4. Detach the right frame by pushing the rear panel toward the outer direction (㉚).



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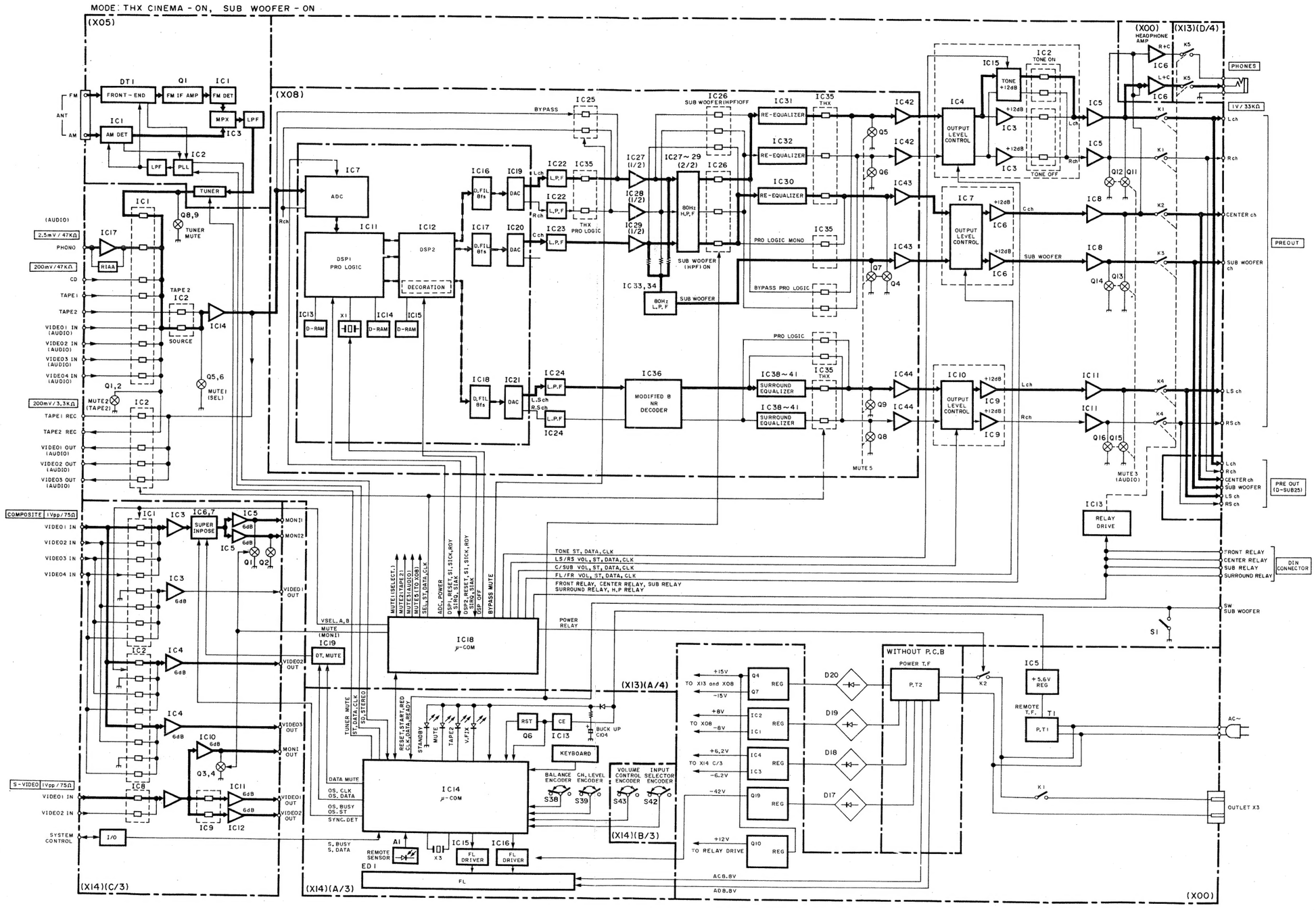
BLOCK DIAGRAM



CIRCUIT DESCRIPTION

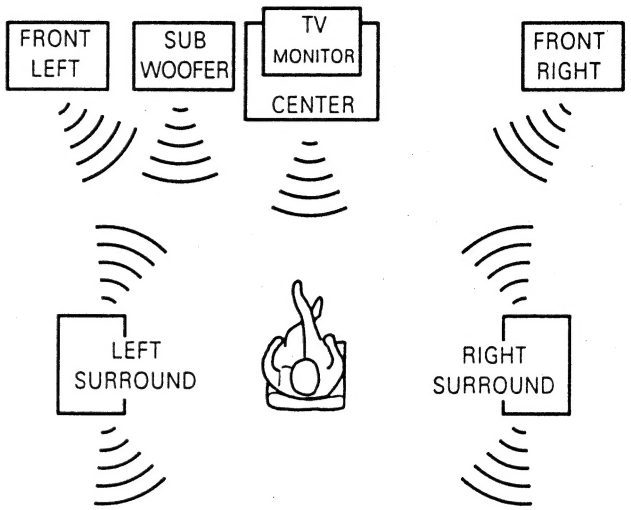
1. Outline of THX system

The THX system reproduces a similar Dolby Surround acoustic effect to movie theaters from a video software program carrying the DOLBY SURROUND mark.
The differences between the THX and the Dolby Surround function are as follows:

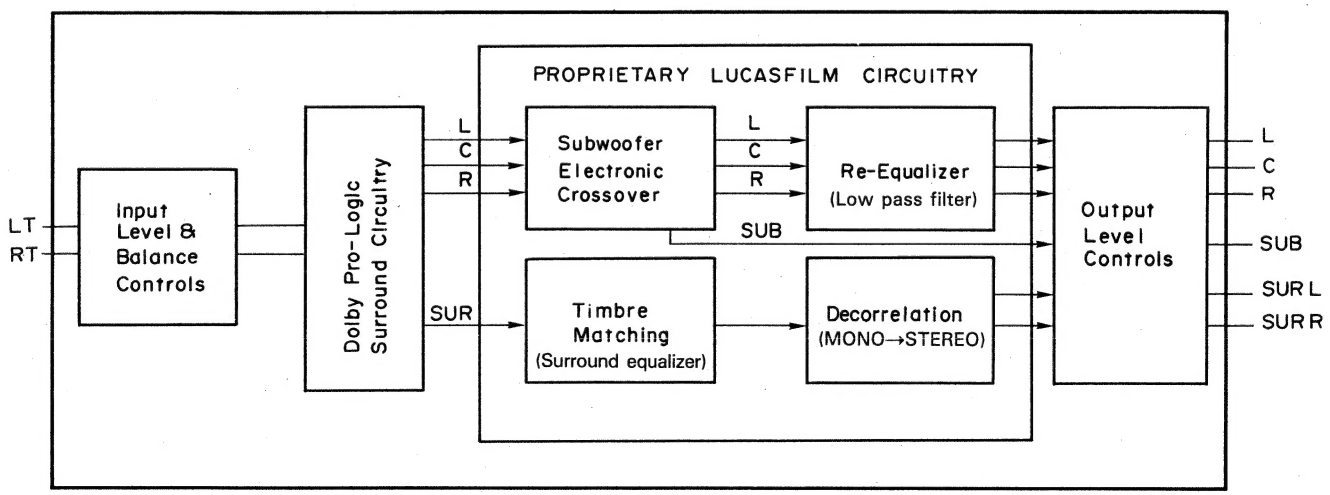
(1) In the video software carrying the DOLBY SURROUND mark, the high frequencies are enhanced assuming reproduction in a large place such as movie theaters (because high frequencies tend to be attenuated in a large place due to the distance between the speakers and audience).
In consequence, the THX applies re-equalization to the signal to prevent excessive high frequencies when the program is played in home.

(2) The rear component of the Dolby Surround signal is monaural but, to obtain more feeling of presence, the THX reproduces the rear component in simulated stereo by decelerating the rear left and right pitches by 1/100.

(3) To obtain an equivalent feeling of presence to movie theaters, the THX uses the same quality of speakers for the front and center channels. The rear (surround) speakers are located directly to the left and right of the listeners and their sounds are radiated so that the listener does not sense the source of surround sound.



THX system



CIRCUIT DESCRIPTION

2. Main microprocessor: μPD78044GF-024 (X14: IC14)

2-1. Function description

(1) Feature

Audio input (9 channels)	CD, PHONO, TUNER, TAPE1, TAPE2, VIDEO1, VIDEO2, VIDEO3, VIDEO4
Video input (4 channels)	VIDEO1 (PLAY/REC), VIDEO2 (PLAY/REC), VIDEO3 (PLAY/REC), VIDEO4 (PLAY)
Surround mode	DOLBY PRO•LOGIC, 3 STEREO, THX CINEMA, DSP LOGIC, MONO
Center mode	NORMAL, WIDEBAND, PHANTOM (PRO•LOGIC, THX) NORMAL, WIDEBAND (3 STEREO)
User memory	Tuner random 40 station preset

(2) Control object

FL display (X14; EDI: FIP30XM1AA)	
LED (X14: D60~63)	
IC	
LM7001 (X05: IC2)	PLL
LC75711E (X14: IC15, 16)	FL driver (FL: FIP30XM1AA)
μPD6450CX-514 (X14: IC6)	OSD
μPD78043GF-020 (X13: IC18)	Control microprocessor

2-2. Destination setting

Setting switch		Destination	Band	Received frequency range	Channel space	Reference frequency
Channel space $\overline{50kHz}$/100kHz (Pin 56)	AM SHORT/LONG selection $\overline{1610kHz}$/1700kHz (Pin 55)					
High	Low	K1	FM	87.5~108.0 MHz	100 kHz	50 kHz
			AM	530~1610 kHz	10 kHz	10 kHz
High	High	K2	FM	87.5~108.0 MHz	100 kHz	50 kHz
			AM	530~1700 kHz	10 kHz	10 kHz
Low	—	E	FM	87.5~108.0 MHz	50 kHz	50 kHz
			AM	531~1602 kHz	9 kHz	9 kHz

CIRCUIT DESCRIPTION

2-3. Initial setting

(1) Setting method

While pressing the POWER key, plug the power cord to the AC wall outlet.

POWER	OFF
AUDIO selector	TUNER
TAPE 2	OFF
VIDEO selector	VIDEO 1
BAND	FM
Frequency	Lower limit of FM
AUTO/MONO	AUTO
Preset channel display	"--"
Preset channel frequency	Refer to figure 1.
Surround	BYPASS
Front (Left, Right)	0 dB
Center	0 dB
Rear (Left, Right)	0 dB
Sub woofer	0 dB
Center mode	
PRO LOGIC	NORMAL
3-STEREO	NORMAL
THX CINEMA	WIDEBAND
MASTER VOLUME	−45 dB

(Figure 1)

Destination / CH	K1		K2		E	
	BAND	Frequency	BAND	Frequency	BAND	Frequency
1	FM	98.00	FM	98.00	FM	98.00
2	FM	108.00	FM	108.00	FM	108.00
3	AM	630	AM	630	AM	630
4	AM	990	AM	990	AM	990
5	AM	1440	AM	1440	AM	1440
6	AM	1610	AM	1700	AM	1602
7	FM	87.50	FM	87.50	FM	87.50
8	FM	98.50	FM	98.50	FM	98.50
9	AM	530	AM	530	AM	531
10	FM	89.10	FM	89.10	FM	89.10
11~40	FM	87.50	FM	87.50	FM	87.50

Frequency unit FM : MHz
AM : kHz

CIRCUIT DESCRIPTION

2-4. Test mode

(1) Setting method

While pressing the TUNING DOWN key, plug the power cord to the AC wall outlet.
When the test mode is entered, the FL tube display all lights.

(2) Key and functions valid in test mode.

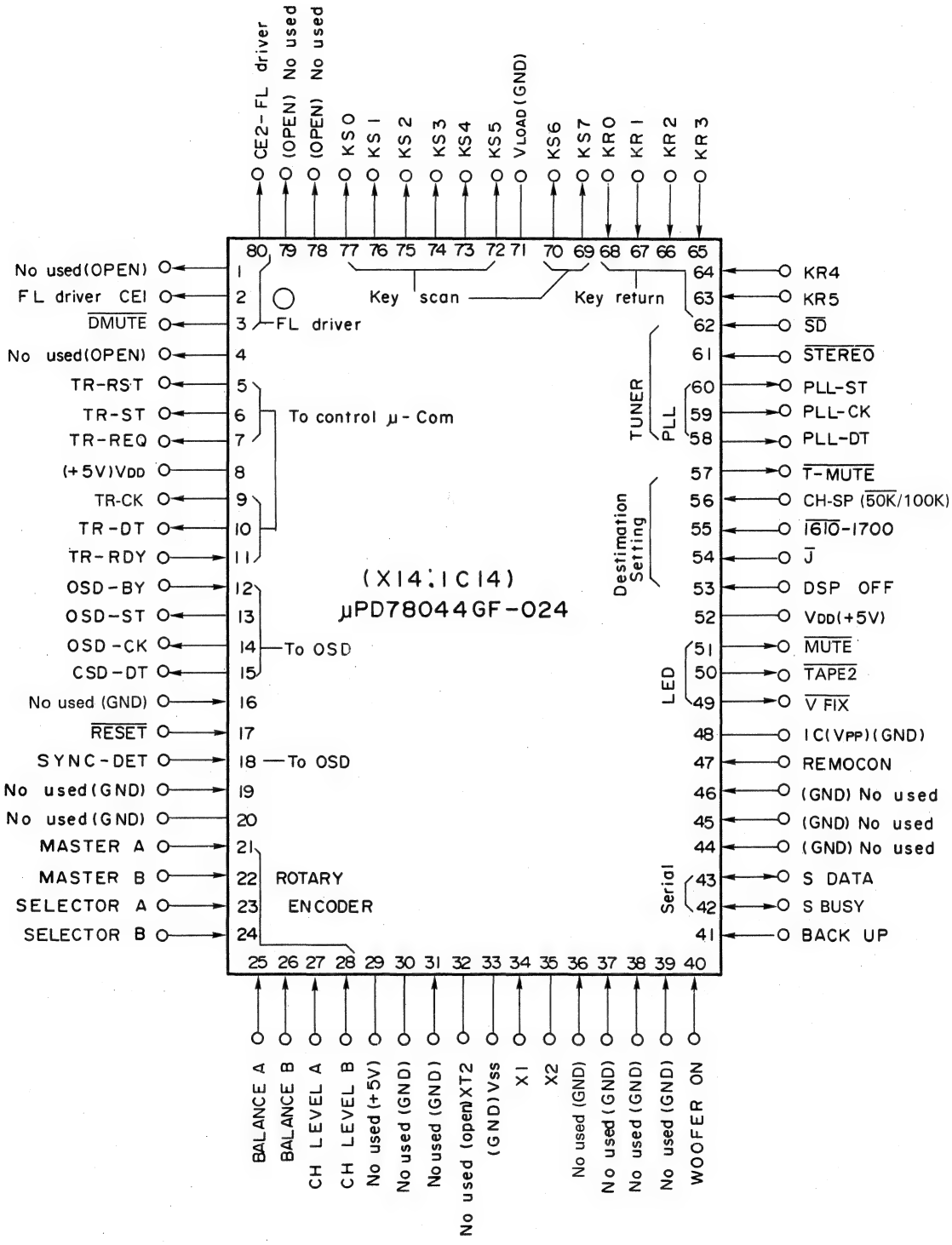
Input key	Function
V. FIX	Each time the key is pressed, the FL test mode alternates. → FLL all lights mode → Grid test mode → Segment test mode →
When the following key is pressed, the FL tube display turn off.	
TAPE 2	Each time the key is pressed, the MASTER VOLUME level alternates. → +18 dB → 0 dB → −12 dB → −52 dB → −61 dB →
0	Recall preset channel No. 10.
DELAY TIME △ ▽	The delay time alternates. THX, PROLOGIC : 15 ms ↔ 30 ms DSP LOGIC : 1 ms ↔ 40 ms ↔ 80 ms
PRESENCE LEVEL △ ▽	The presence level alternates. 0 dB ↔ −10 dB ↔ −20 dB
CHANNEL LEVEL △ ▽	Each channel level alternates. −12 dB ↔ 0 dB ↔ +12 dB
Other keys	Normal State

(3) Method of cancelling the test mode

While pressing the POEWR key, plug the power cord to the AC wall outlet.

CIRCUIT DESCRIPTION

2-5. Pin connection



CIRCUIT DESCRIPTION

2-6. Pin description

Pin No.	Name	I/O	Description
1	—	O	(OPEN)
2	CE1	O	FL driver output CE1
3	$\overline{\text{DMUTE}}$	O	DATA MUTE
4	—	O	(OPEN)
5	TR RST	O	Control microprocessor communication RESET
6	TR ST	O	Control microprocessor communication START
7	TR REQ	O	Control microprocessor communication REQ
8	VDD	—	(+5 V)
9	TR CK	O	Control microprocessor communication CLOCK
10	TR DT	O	Control microprocessor communication DATA
11	TR RDY	I	Control microprocessor communication READY
12	OSD BY	I	OSD IC input BUSY
13	OSD ST	O	OSD IC output STROBE
14	OSD CK	O	FL driver IC and OSD IC output CLOCK
15	OSD DT	O	FL driver IC and OSD IC output DATA
16	—	I	(GND)
17	$\overline{\text{RESET}}$	I	Reset pin
18	SYNC DET	I	OSD video selection input. Internal/$\overline{\text{External}}$
19	—	I	(GND)
20	—	—	(GND)
21	MASTER A	I	Encoder input MASTER A
22	MASTER B	I	Encoder input MASTER B
23	SELECTOR A	I	Encoder input SELECTOR A
24	SELECTOR B	I	Encoder input SELECTOR B
25	BALANCE A	I	Encoder input BALANCE A
26	BALANCE B	I	Encoder input BALANCE B
27	CH LEVEL A	I	Encoder input CH LEVEL A
28	CH LEVEL B	I	Encoder input CH LEVEL B
29	—	—	A/D analog power supply (+5 V)
30	—	—	A/D constant voltage input (GND)
31	—	I	(GND)
32	—	—	(Open)
33	VSS	—	(GND)
34	X1	I	Oscillator pin
35	X2	—	Oscillator pin
36 ~ 39	—	I	(GND)

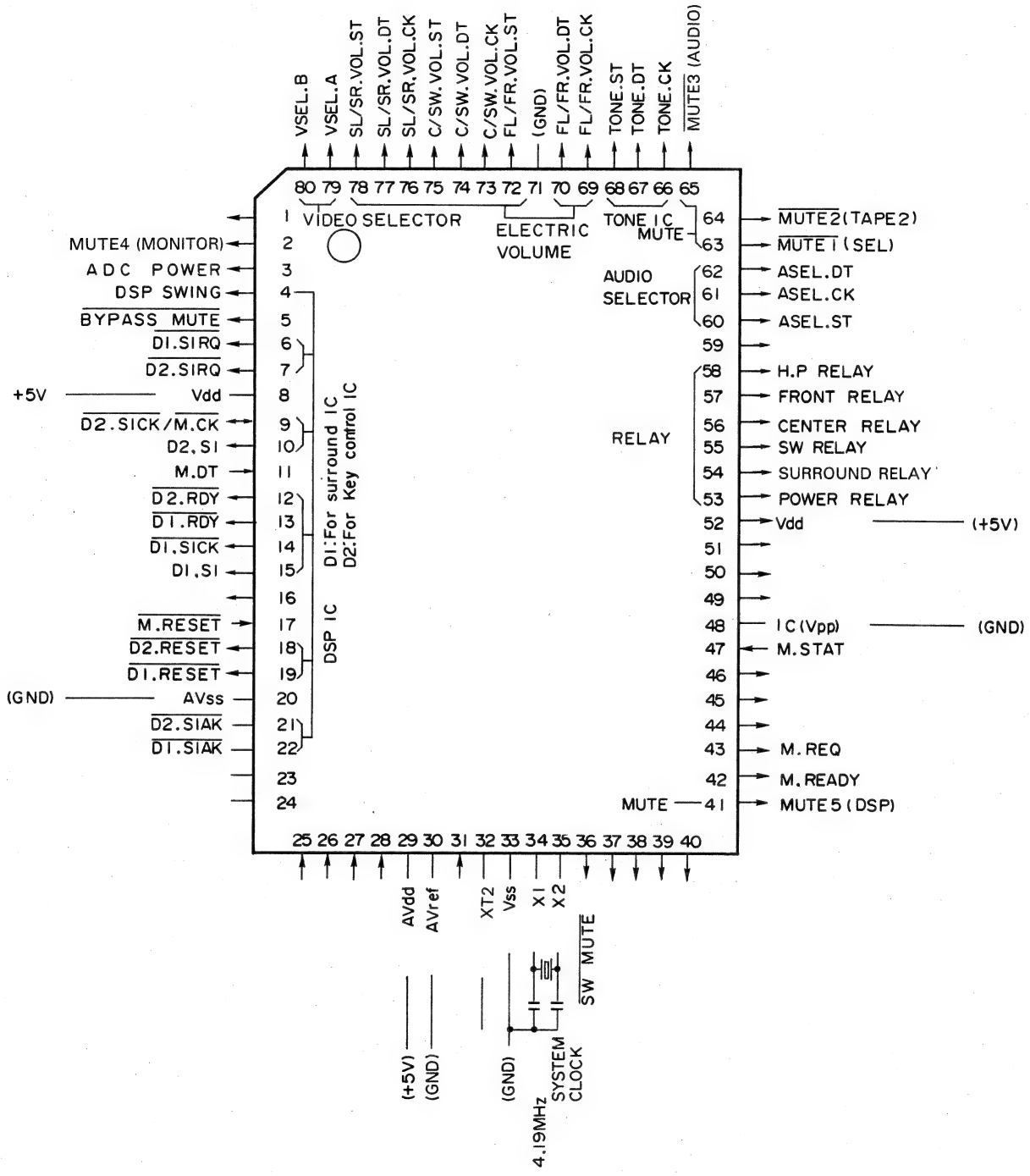
CIRCUIT DESCRIPTION

Pin No.	Name	I/O	Description
40	WOOFER ON	I	Sub woofer ON/$\overline{\text{OFF}}$
41	BACKUP	I	Back up input
42	SBUSY	I/O	Serial BUSY
43	SDATA	I/O	Serial DATA
44~46	—	I	(GND)
47	REMOCON	I	Remote control signal input
48	—	—	(GND)
49	$\overline{\text{V. FIX}}$	O	V. FIX (LED)
50	$\overline{\text{TAPE 2}}$	O	TAPE 2 (LED)
51	$\overline{\text{MUTE}}$	O	MUTE (LED)
52	VDD	—	+5 V
53	DSPOFF	I	$\overline{\text{DSP ON MODE}}$/DSP OFF MODE
54	$\overline{\text{J}}$	I	Destination J selection
55	$\overline{\text{1610}}$/1700	I	AM SHORT/LONG selection
56	CH SP	I	CH. SPACE $\overline{\text{50 kHz}}$/100 kHz
57	$\overline{\text{T MUTE}}$	O	TUNER MUTE
58	PLL DT	O	PLL IC DATA
59	PLL CK	O	PLL IC CLOCK
60	PLL ST	O	PLL IC STROBE
61	$\overline{\text{STEREO}}$	I	STEREO detection signal input
62	$\overline{\text{SD}}$	I	SD input
63~68	KR5~0	I	Key return 5~Key return 0
69, 70	KS7, 6	O	Key scan 7, 6
71	VLOAD	—	(GND)
72~77	KS5~0	O	Key scan 5~Key scan 0
78, 79	—	O	(OPEN)
80	CE2	O	FL driver CE2

CIRCUIT DESCRIPTION

3. Control microprocessor: μPD78043GF-020 (X14: IC18)

3-1. Pin connection



CIRCUIT DESCRIPTION

3-2. Pin description

Pin No.	Name	I/O	Description
1	—	O (I)	No used
2	MUTE 4 (MONITOR)	O	MUTE 4 (Monitor (VIDEO) mute) Low: MUTE OFF, High: MUTE ON
3	ADC POWER	O	Power supply to A/D convertor IC (CS5339-KP) Low: Power OFF, High: Power ON
4	DSP SWING	O	Oscillation to DSP IC (LC83016E) Low: Oscillation, High: No oscillation
5	$\overline{\text{BYPASS MUTE}}$	O	Surround bypass mute Low: BYPASS, High: SURROUND
6	$\overline{\text{D1. SIRQ}}$	O	DSP1 (LC83016E) → SIRQ (Request pin)
7	$\overline{\text{D2. SIRQ}}$	O	DSP2 (LC83016E) → SIRQ (Request pin)
8	Vdd		+5 V
9	$\overline{\text{D2. SICK}}$	I	DSP2 (LC83016E) → SICK (Clock pin)
	$\overline{\text{M. CK}}$	O	Main μ-com (μPD78044) → Communication clock pin
10	D2. SI	O	DSP2 (LC83016E) → SI (Data pin)
11	M. DT	I	Main μ-com (μPD78044) → Communication data pin
12	$\overline{\text{D2. RDY}}$	O	DSP2 (LC83016E) → READY (Ready pin)
13	$\overline{\text{D1. RDY}}$	O	DSP1 (LC83016E) → READY (Ready pin)
14	$\overline{\text{D1. SICK}}$	O	DSP1 (LC83016E) → SICK (Clock pin)
15	D1. SI	O	DSP1 (LC83016E) → SI (Data pin)
16	—	O (I)	No used
17	$\overline{\text{M. RESET}}$	I	Main μ-com (μPD78044) → Communication reset pin
18	$\overline{\text{D2. RESET}}$	O	DSP2 (LC83016E) → RES (Reset pin)
19	$\overline{\text{D1. RESET}}$	O	DSP1 (LC83016E) → RES (Reset pin)
20	AVss		GND
21	$\overline{\text{D2. SIAK}}$	I	DSP2 (LC83016E) → SIAK (Acknoledge pin)
22	$\overline{\text{D1. SIAK}}$	I	DSP1 (LC83016E) → SIAK (Acknoledge pin)
23~28	—	I	No used
29	AVdd		+5 V
30	AVref		GND
31	—	I	No used
32	XT2		No used
33	Vss		GND
34	X1	I	Oscillator 4.19 MHz
35	X2		Oscillator 4.19 MHz
36~40	—	O	No used
41	MUTE 5 (DSP)	O	MUTE 5 (DSP mute) Low: MUTE OFF, High: MUTE ON
42	M. READY	O	Main μ-com (μPD78044) → Communication READY pin
43	M. REQ	I	Main μ-com (μPD78044) → Communication REQUEST pin
44~46	—	O (I)	No used
47	M. START	I	Main μ-com (μPD78044) → Communication START pin

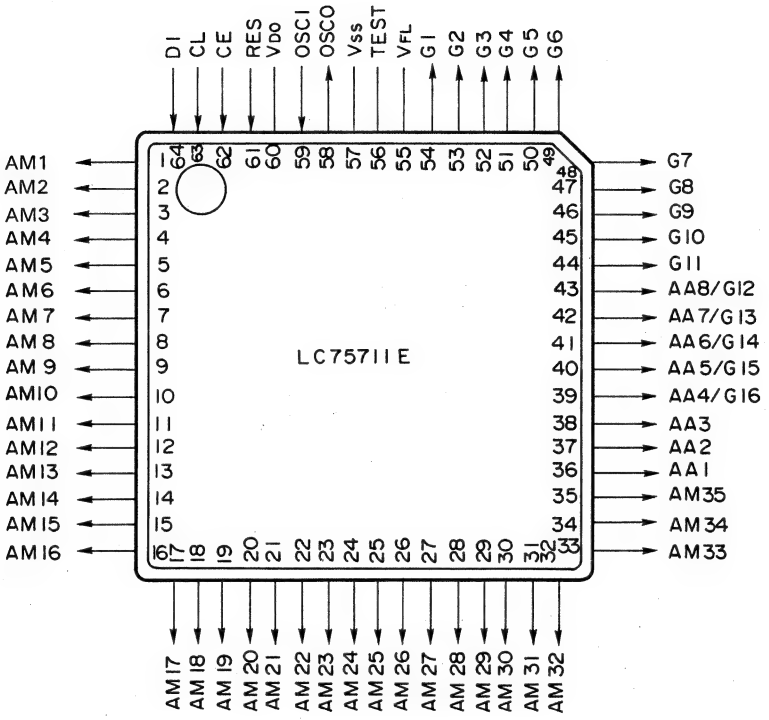
CIRCUIT DESCRIPTION

Pin No.	Name	I/O	Description
48	IC (Vpp)		GND
49~51	—	O (I)	No used
52	Vdd		+5 V
53	POWER RELAY	O	Power relay
54	SURROUND RELAY	O	Surround (Rear L/R ch) speaker relay
55	SW RELAY	O	Sub woofer speaker relay
56	CENTER RELAY	O	Center speaker relay
57	FRONT RELAY	O	Front (L/R ch) speaker relay
58	H.P. RELAY	O	Headphone relay
59	—	O (I)	No used
60	ASEL. ST	O	Audio selector IC (NJU7311L/TC9163N/TC9164N) → ST (Strobe pin)
61	ASEL. CK	O	Audio selector IC (NJU7311L/TC9163N/TC9164N) → CK (Clock pin)
62	ASEL. DT	O	Audio selector IC (NJU7311L/TC9163N/TC9164N) → DATA (Data pin)
63	$\overline{\text{MUTE 1}}$ (SELECTOR)	O	MUTE 1 (Selector selection mute) Low: MUTE ON, High: MUTE OFF
64	$\overline{\text{MUTE 2}}$ (TAPE 2)	O	MUTE 2 (TAPE 2 selection mute) Low: MUTE ON, High: MUTE OFF
65	$\overline{\text{MUTE 3}}$ (AUDIO)	O	MUTE 3 (Output mute) Low: MUTE ON, High, MUTE OFF
66	TONE. CK	O	Electric tone IC (TC9184P) → CK (Clock pin)
67	TONE. DT	O	Electric tone IC (TC9184P) → DATA (Data pin)
68	TONE. ST	O	Electric tone IC (TC9184P) → STB (Strobe pin)
69	FL/FR VOL. CK	O	FL/FR ch Electric volume IC (TC9213P) → CK (Clock pin)
70	FL/FR VOL. DT	O	FL/FR ch Electric volume IC (TC9213P) → DATA (Data pin)
71	Vload		GND
72	FL/FR VOL. ST	O	FL/FR ch Electric volume IC (TC9213P) → STB (Strobe pin)
73	C/SW VOL. CK	O	CENTER/SUBWOOFER ch Electric volume IC (TC9213P) → CK
74	C/SW VOL. DT	O	CENTER/SUBWOOFER ch Electric volume IC (TC9213P) → DATA
75	C/SW VOL. ST	O	CENTER/SUBWOOFER ch Electric volume IC (TC9213P) → STB
76	SL/SR VOL. CK	O	LS/RS ch Electric volume IC (TC9213P) → CK (Clock pin)
77	SL/SR VOL. DT	O	LS/RS ch Electric volume IC (TC9213P) → DATA (Data pin)
78	SL/SR VOL. ST	O	LS/RS ch Electric volume IC (TC9213P) → STB (Strobe pin)
79	VSEL. A	O	Video selector IC (MC74HC4052N/MC74HC4053N) → A
80	VSEL. B	O	Video selector IC (MC74HC4052N/MC74HC4053N) → B

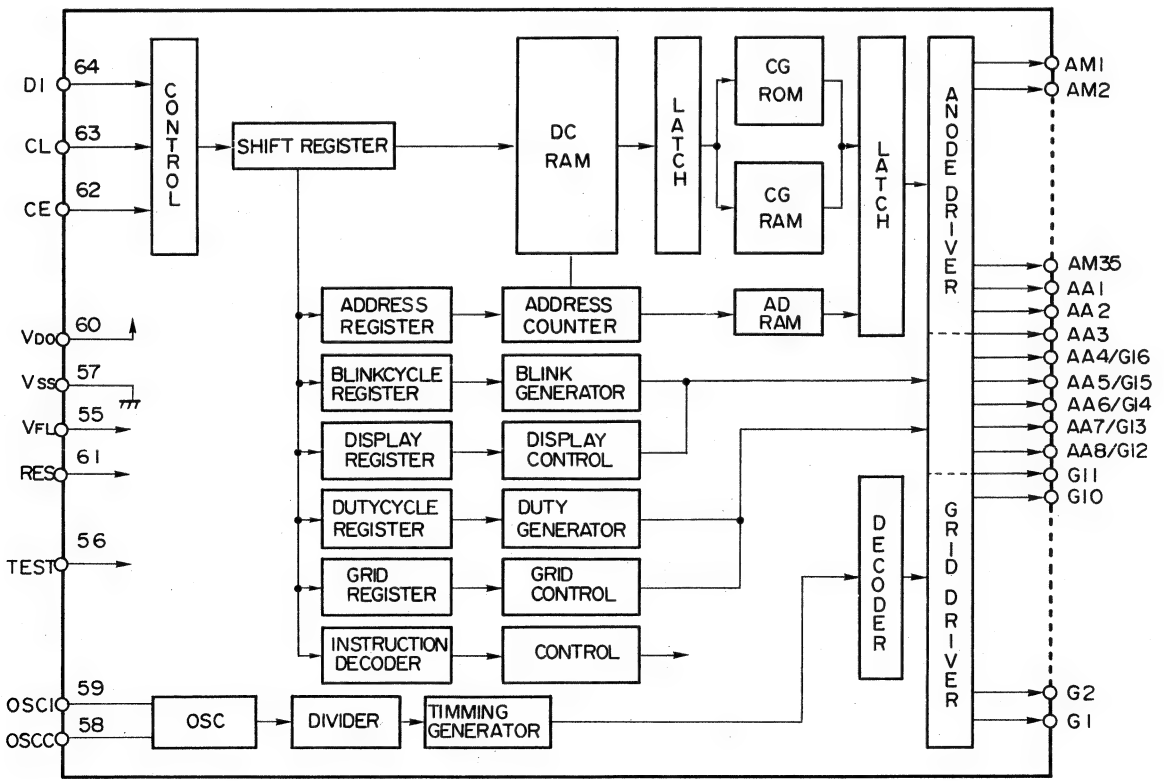
CIRCUIT DESCRIPTION

4. Display control driver: LC75711E (X14: IC15, 16)

4-1. Pin connection

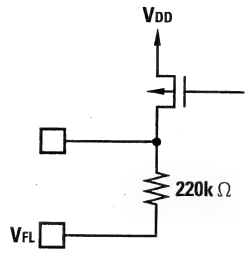
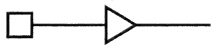
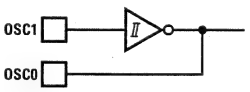
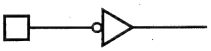
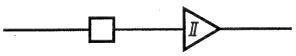


4-2. Block diagram

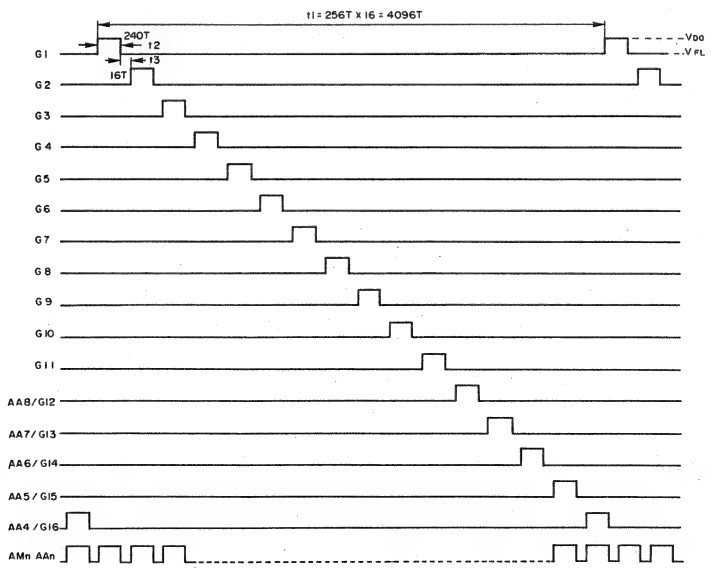


CIRCUIT DESCRIPTION

4-3. Pin function

Pin No.	Pin name	Circuit design	Function
1~35 36~38	AM1~AM35 AA1~AA3		Anode output terminals With built-in pull-down resistors.
39~43	AA4/G16 AA5/G15 AA6/G14 AA7/G13 AA8/G12		Anode/grid output terminals These terminals become the grid output terminals when the number of display columns selected with the "display column specification" instruction is between 12 and 16 columns. With built-in pull-down resistors.
44~54	G1~G11		Grid output terminals With built-in pull-down resistors.
55	VFL		Driver circuitry power terminal
56	TEST		LSI test terminal Always connect to Vss for use.
57	Vss		Logic circuitry power terminal, GND
58, 59	OSC1 OSC0		External C and R connection terminals for oscillator
60	VDD		Logic circuitry power terminal, +5 V typ
61	$\overline{RES}$		System reset input terminal
62~64	DI CL CE		Serial data transfer terminals DI : Transfer data CL: Sync clock CE: Chip enable

4-4. Grid timing chart



t1 : Frame cycle
t2 : Display timing
t3 : Blanking time

$T : \frac{3}{fosc}$

(fosc: Generating frequency)

CIRCUIT DESCRIPTION

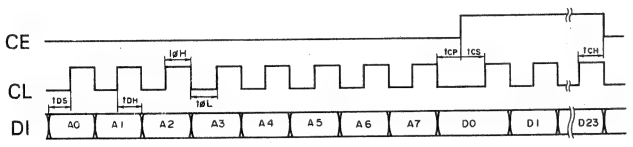
4-5. Data input ADDRESS

- The serial control data consists of 8 address bits and 24 bits of instruction code. The address code is used as the chip select data when the device is connected to the common bus line, and the code configuration is as shown below.

Address							
A0	A1	A2	A3	A4	A5	A6	A7
1	1	1	0	0	1	1	0

Note) Instruction ''CGRAM data write'' requires 56 bits.

- DI, CL and CE timing



The data is input internally at the positive-going edge of CL, and latched at the negative-going edge of CE. When an instruction is sent from the microprocessor, the period after having sent an instruction until the start of the next instruction shall be longer than the instruction execution time.

CIRCUIT DESCRIPTION

5. Control of selector IC and speaker relay

5-1. Audio selector

Selector IC name	(X08: IC35) NJU7311L							(X13: IC2) TC9164N①	
Pin No.	2	3	5	6	8	9	11	10	11
	27	26	24	23	20	21	18	19	18
Selector pin name / Surround mode	THX ON	THX OFF	THX ON	THX OFF	THX ON	THX OFF	SURROUND	TONE OFF	TONE ON
BYPASS		○		○		○		▲	△
PROLOGIC		○		○		○	○	○	
3 STEREO		○		○		○	○	○	
THX CINEMA	○		○		○		○	○	
DSP LOGIC		○		○		○	○	○	
MONO		○		○		○	○	○	

Selector IC name		(X13: IC1) TC9163N							
Pin No.	Lch	27	26	25	23	22	21	19	18
	Rch	2	3	4	6	7	8	10	11
Selector pin name / Selector position		TUNER	PHONO	CD	TAPE1	VIDEO1	VIDEO2	VIDEO3	VIDEO4
TUNER		○							
TAPE 1					○				
VIDEO 1						○			
VIDEO 2							○		
VIDEO 3								○	
VIDEO 4									○
CD				○					
PHONO			○						

Selector IC name		(X13: IC2) TC9164N ②					
Pin No.	Lch	2	3	4	5	7	8
	Rch	27	26	25	24	22	21
Selector pin name / Selector position		VIDEO3	VIDEO2	VIDEO1	TAPE1	SOURCE	TAPE2
TUNER		○	○	○	○	♦	◇
TAPE 1		○	○	○		♦	◇
VIDEO 1		○	○		○	♦	◇
VIDEO 2		○		○	○	♦	◇
VIDEO 3			○	○	○	♦	◇
VIDEO 4		○	○	○	○	♦	◇
CD		○	○	○	○	♦	◇
PHONO		○	○	○	○	♦	◇

○; ON ◇; With TAPE 2 ON △; With TONE CONTROL ON
Blank; OFF ♦; With TAPE 2 OFF ▲; With TONE CONTROL OFF

5-2. Video selector

Selector IC name	(X14: IC1, IC2) MC74HC4052N			(X14: IC8, IC9) MC74HC4053N			
Selector / Control pin	INHIBIT (6pin)	B (9pin)	A (10pin)	INHIBIT (6pin)	C (9pin)	B (10pin)	A (11pin)
VIDEO 1	L	L	L	L	L	L	L
VIDEO 2	L	L	H	L	H	H	H
VIDEO 3	L	H	L				
VIDEO 4	L	H	H				

H: High L: Low

5-3. Line out relay

Line out relay / Surround mode		THX			PROLOGIC			3 STEREO		DSPLOGIC	MONO	
		N	W	P	N	W	P	N	W		Normally	PP
Front (L/Rch)	relay (X13: K1)	○	○	○	○	○	○	○	○	○	×	○
Center (Cch)	relay (X13: K2)	○	○	×	○	○	×	○	○	○	○	×
Rear (LS/RSch)	relay (X13: K4)	○	○	○	○	○	○	×	×	○	×	×
Headphone	relay (X13: K5)	○	○	○	○	○	○	○	○	○	○	○

○: ON ×: OFF

N ; "NORMAL" mode
W ; "WIDEBAND" mode
P ; "PHANTOM" mode
PP; "PHANTOM" mode (THX and PROLOGIC mode ON).

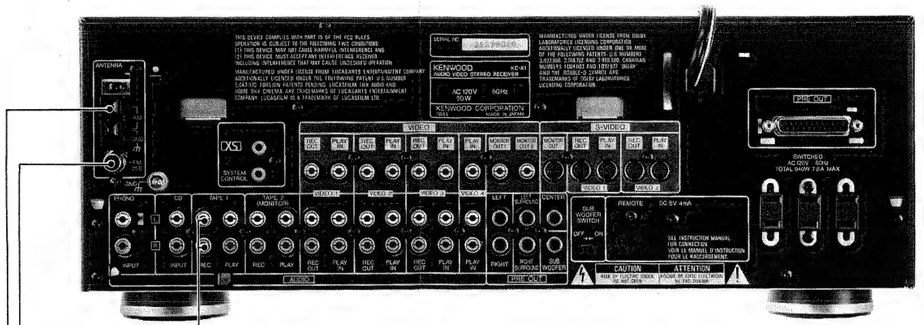
ADJUSTMENT

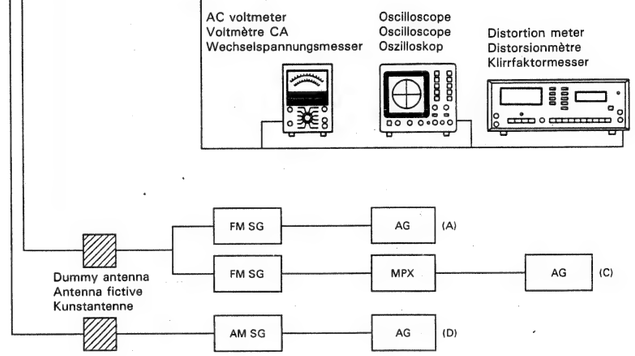
No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION		(X05-)	SELECTOR: FM				
1	DISCRIMINATOR	(A) 98.0MHz 1kHz,±75kHz dev 60dBμ(ANT input)	Connect a DC voltmeter between TP3 and TP4. (X05-)	AUTO or MONO 98.0MHz	L4 (X05-)	0V	(a)
2	DISTORTION (MONO)	(C) 98.0MHz 1kHz,±68.25kHz dev Selector:L or R Pilot:±6.75kHz dev 60dBμ(ANT input)	(B)	98.0MHz	L5 (X05-)	Minimum distortion	
3	VCO	(A) 98.0MHz 0 dev 100dBμ(ANT input)	Connect a frequency counter between TP5 and GND. (X05-)	AUTO 98.0MHz	VR3 (X05-)	19.00kHz	(b)
4	DISTORTION (STEREO)	(C) 98.0MHz 1kHz,±68.25kHz dev Selector:L or R Pilot:±6.75kHz dev 60dBμ(ANT input)	(B)	98.0MHz	T1 (W02-)	Minimum distortion.(L or R)	
5	SEPARATION	(C) 98.0MHz Stereo signal 60dBμ(ANT input)	(B)	AUTO 98.0MHz	VR4 (X05-)	Minimum crosstalk	
6	TUNING LEVEL	(A) 98.0MHz 0dev 14dBμ(ANT input) 75Ω	(B)	AUTO or MONO 98.0MHz	VR1 (X05-)	Adjust VR1 and stop at the point where ED1(TUNED)goes on.	
AM SECTION		(X05-)	SELECTOR: AM				
(1)	BAND EDGE (Low)	–	Connect a DC voltmeter between TP1(GND) and TP2. (X05-)	–	L9 (X05-)	1.5V	(c)
(2)	BAND EDGE (High)	–	Connect a DC voltmeter between TP1(GND) and TP2. (X05-)	–	TC2 (X05-)	8.0V	(c)
	Repeat alignments (1) and (2) several times.						
(3)	RF ALIGNMENT (1)	(D) 600kHz 20dBμ(ANT input)	(B)	–	L8 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1400kHz 20dBμ(ANT input)	(B)	–	TC1 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
Repeat alignments (3) and (4) several times.							
(5)	IF TRANSFORMER	(D) 1000kHz 20dBμ(ANT input)	(B)	–	L10 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(6)	TUNING LEVEL	(D) 1000kHz 36dBμ(ANT input)	(B)	–	VR2 (X05-)	Adjust VR2 and stop at the point where ED1(TUNED) goes on.	

KC-X1 KC-X1

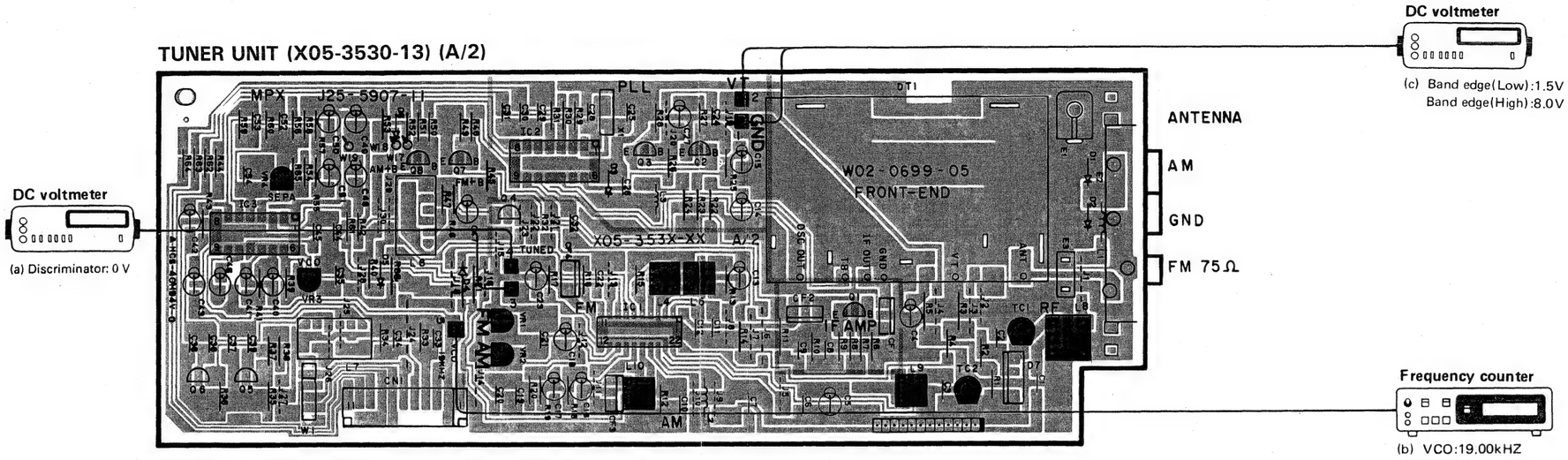
ADJUSTMENT

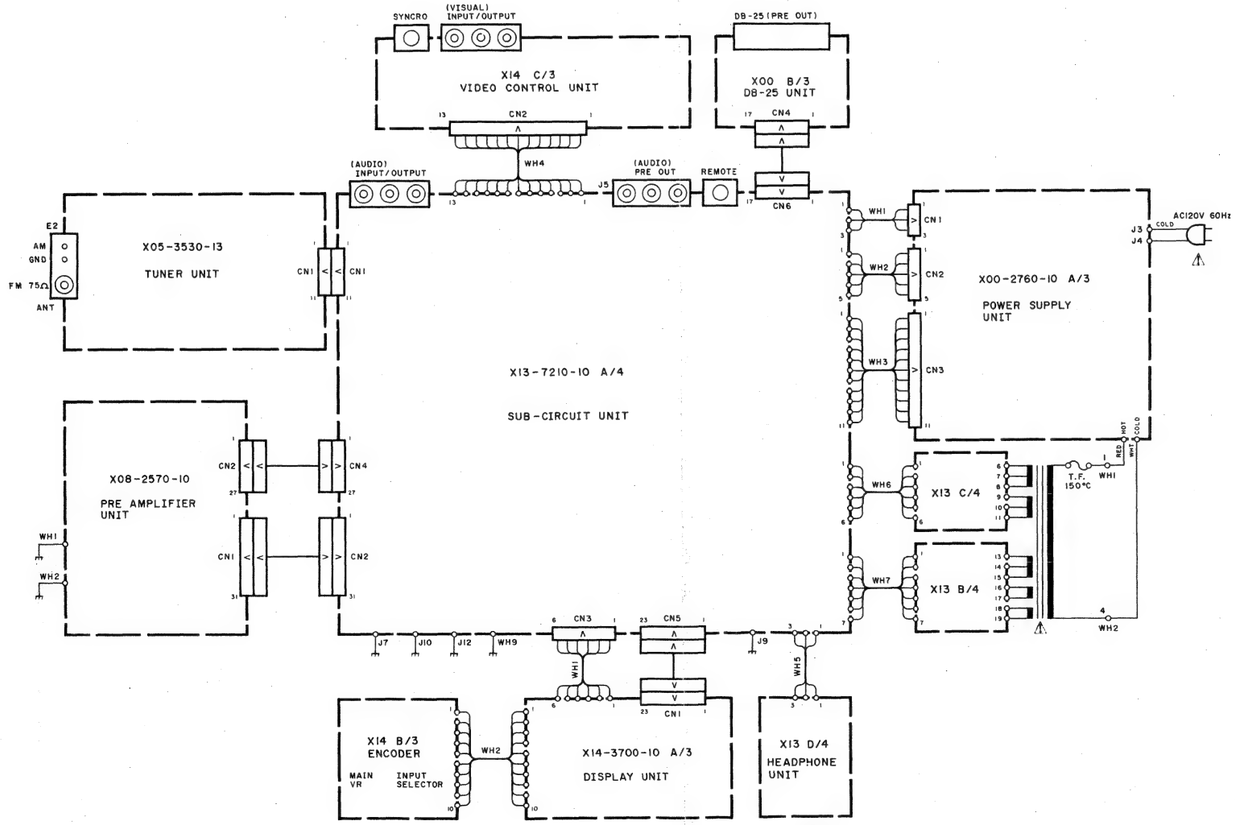
System connections





P.C. BOARD (Component side view)

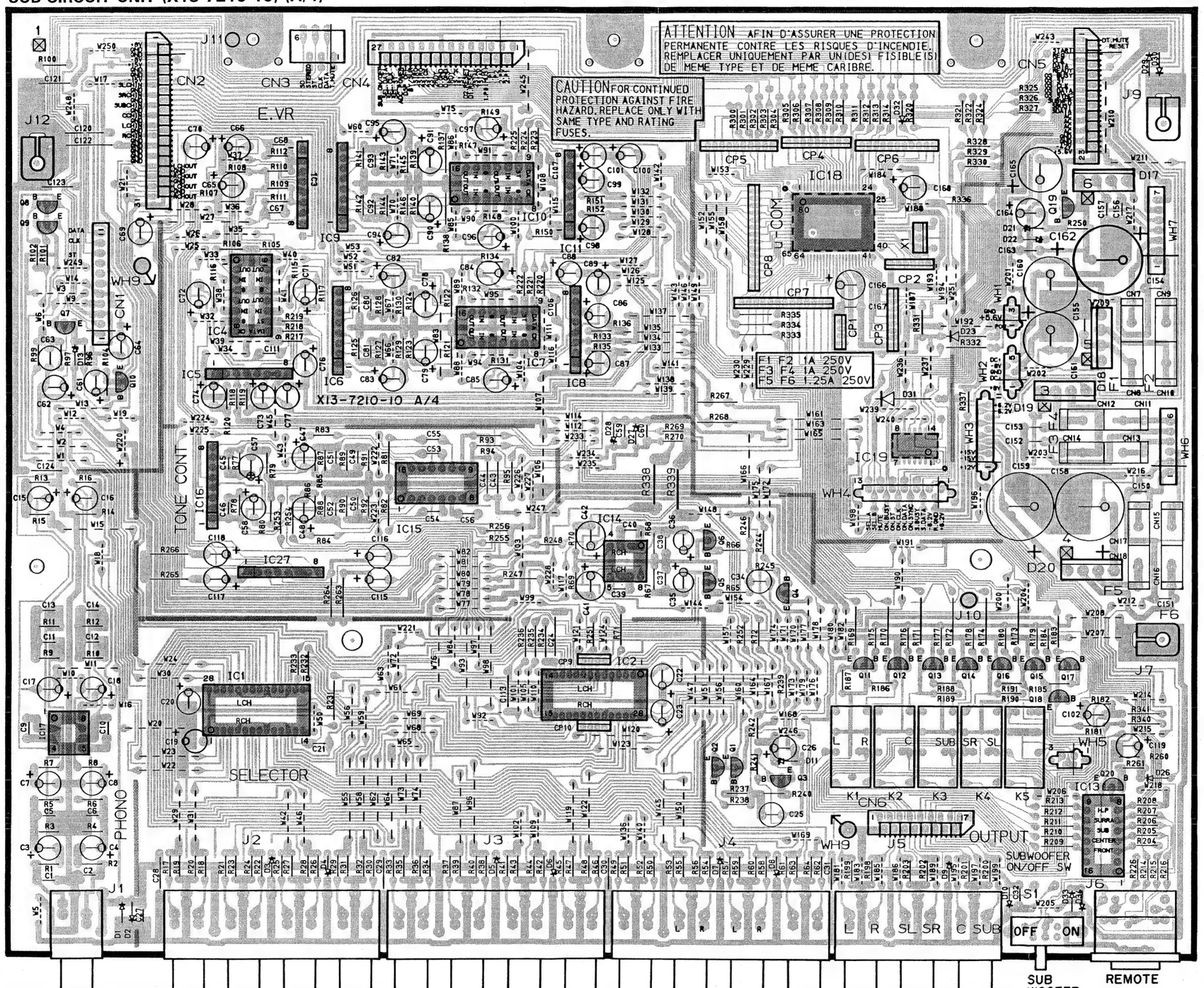


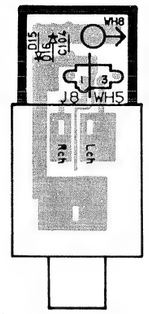


Refer to the schematic diagram for the values of resistors and capacitors.

P.C. BOARD (Component side view)

SUB-CIRCUIT UNIT (X13-7210-10) (A/4)



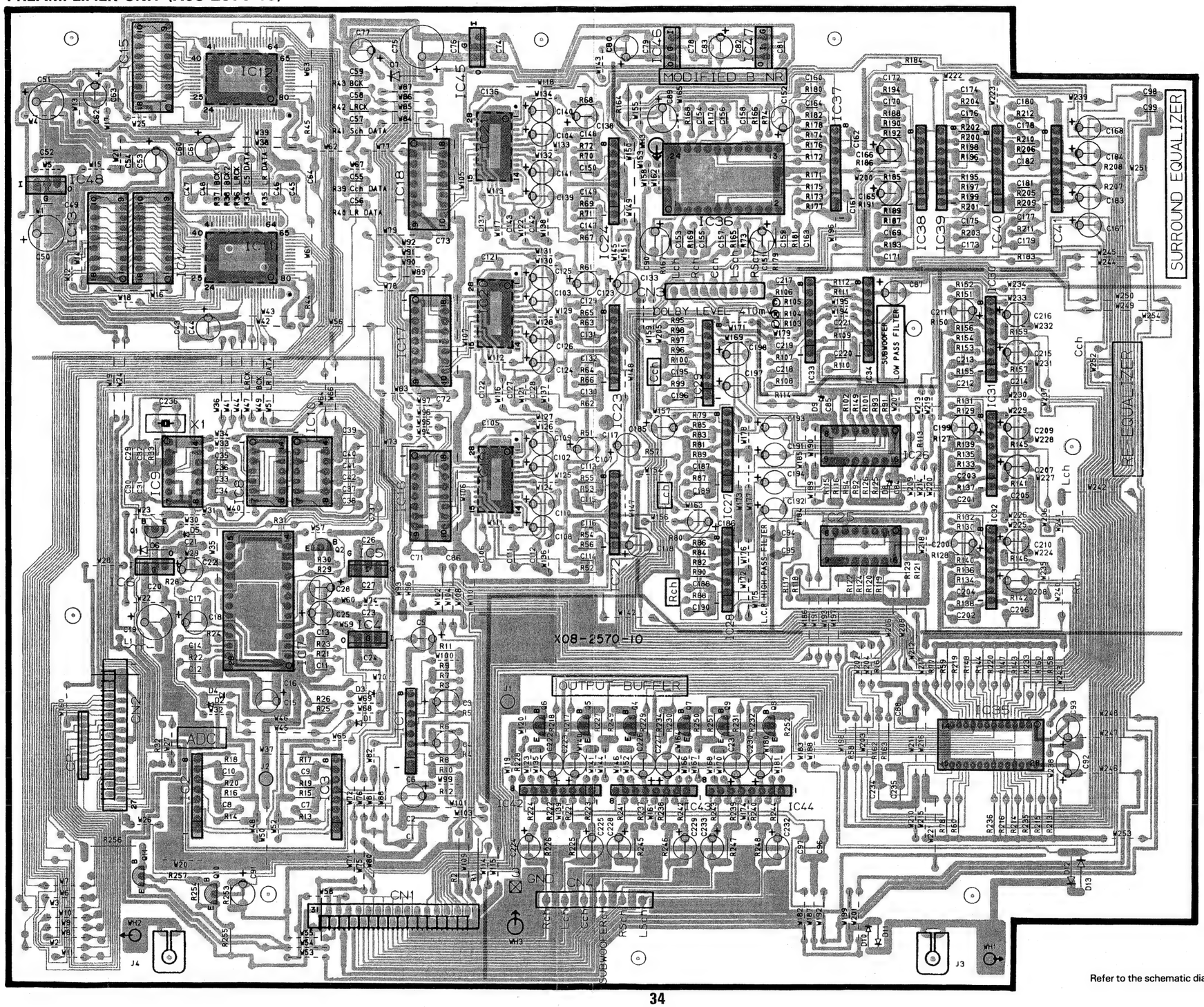


SUB-CIRCUIT UNIT (X13-7210-10) (D/4)

Refer to the schematic diagram for the values of resistors and capacitors.

P.C. BOARD (Component side view)

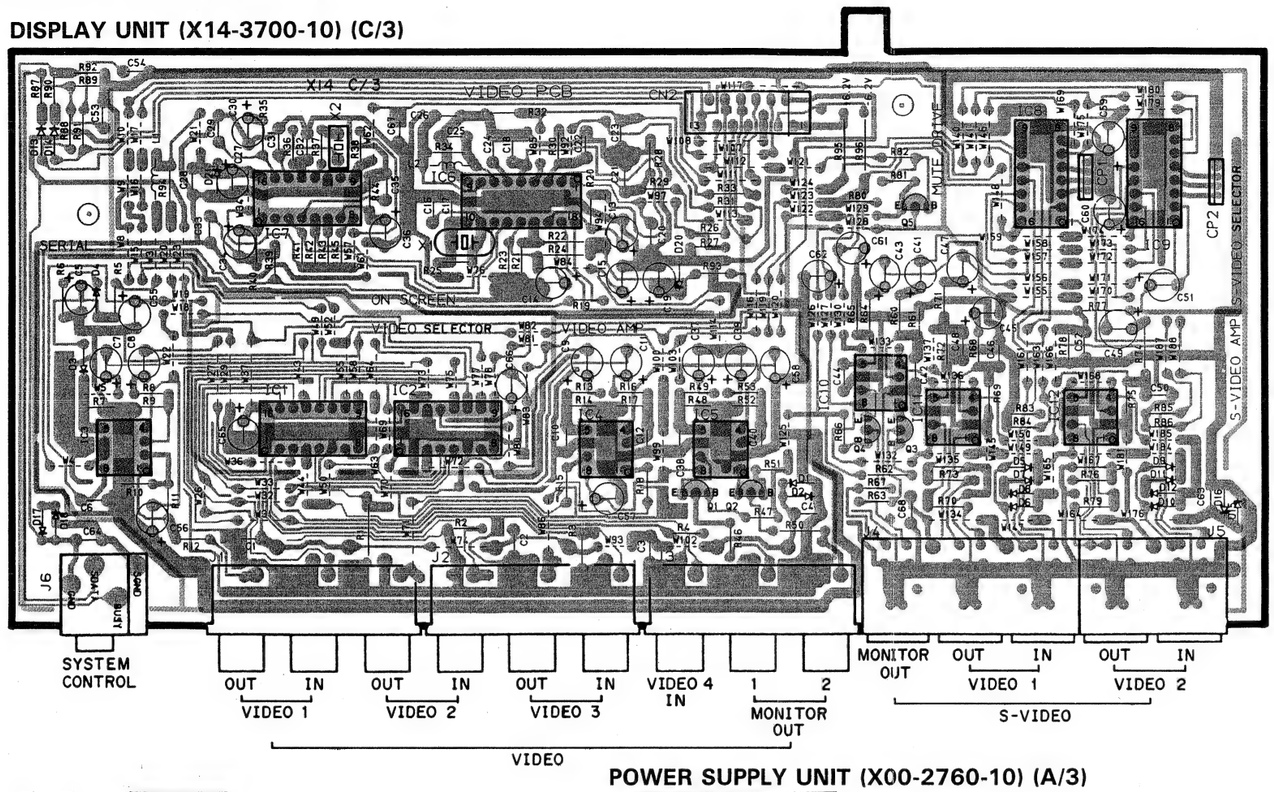
PREAMPLIFIER UNIT (X08-2570-10)



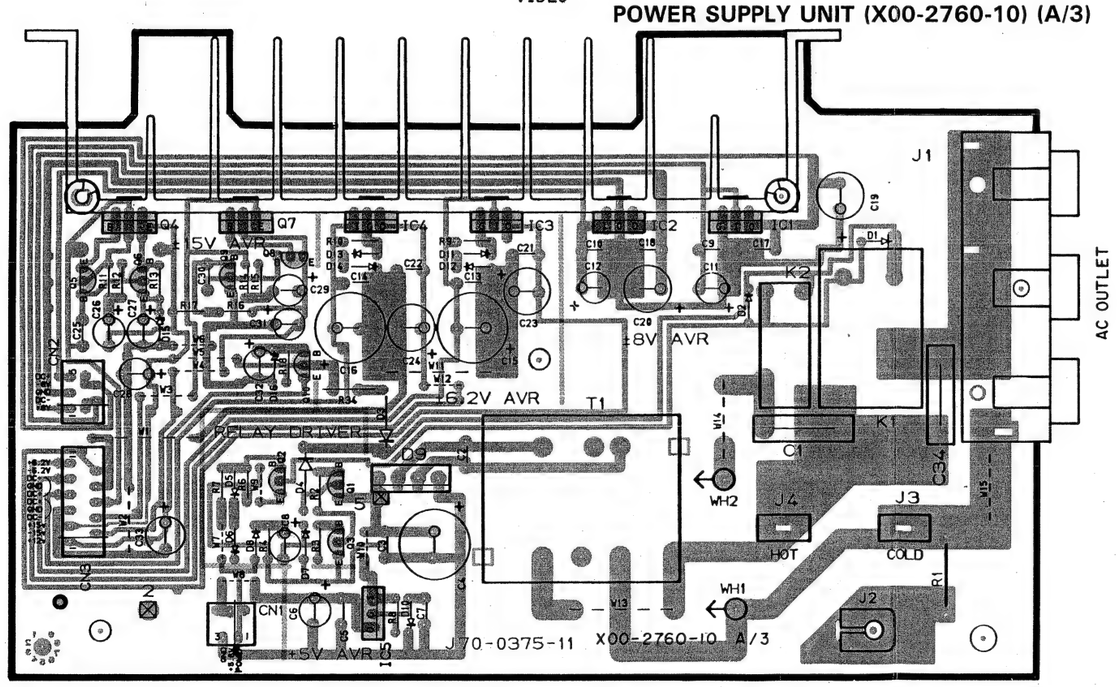
Refer to the schematic diagram for the values of resistors and capacitors.

P.C. BOARD (Component side view)

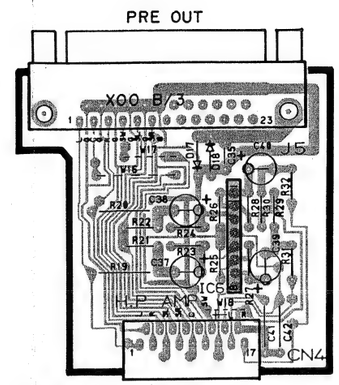
DISPLAY UNIT (X14-3700-10) (C/3)



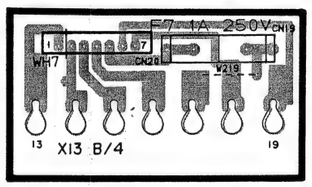
POWER SUPPLY UNIT (X00-2760-10) (A/3)



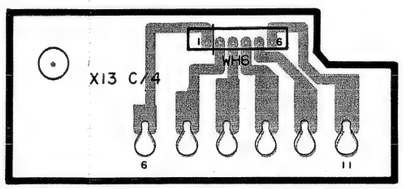
POWER SUPPLY UNIT (X00-2760-10) (B/3)



SUB-CIRCUIT UNIT (X13-7210-10) (B/4)



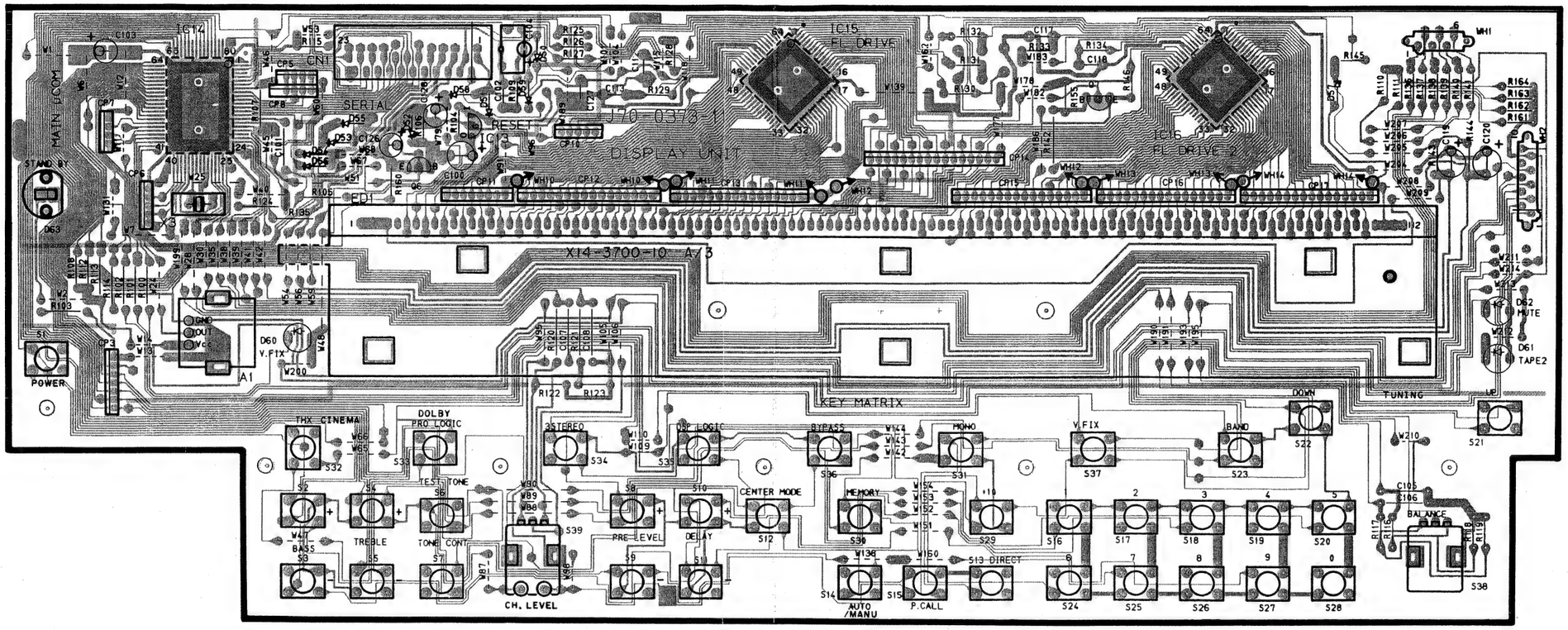
SUB-CIRCUIT UNIT (X13-7210-10) (C/4)

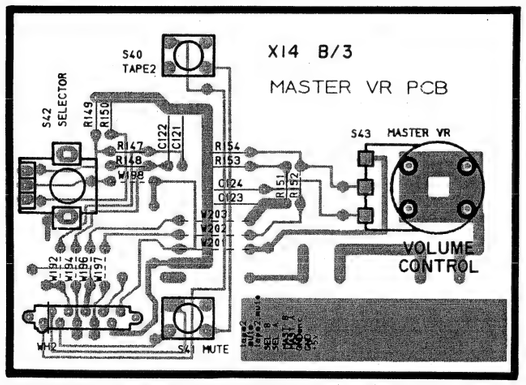


Refer to the schematic diagram for the values of resistors and capacitors.

P.C. BOARD (Component side view)

DISPLAY UNIT (X14-3700-10) (A/3)

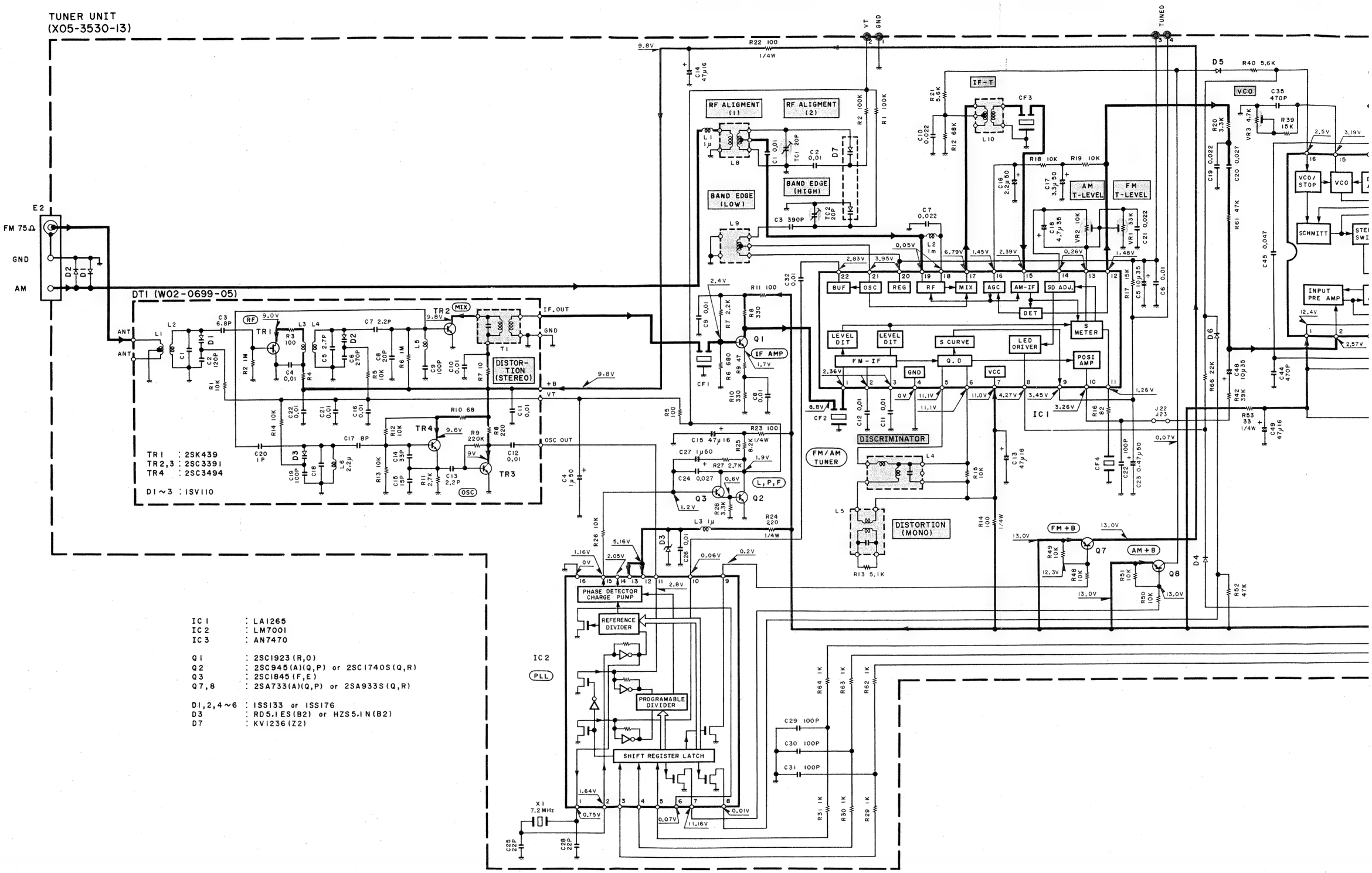


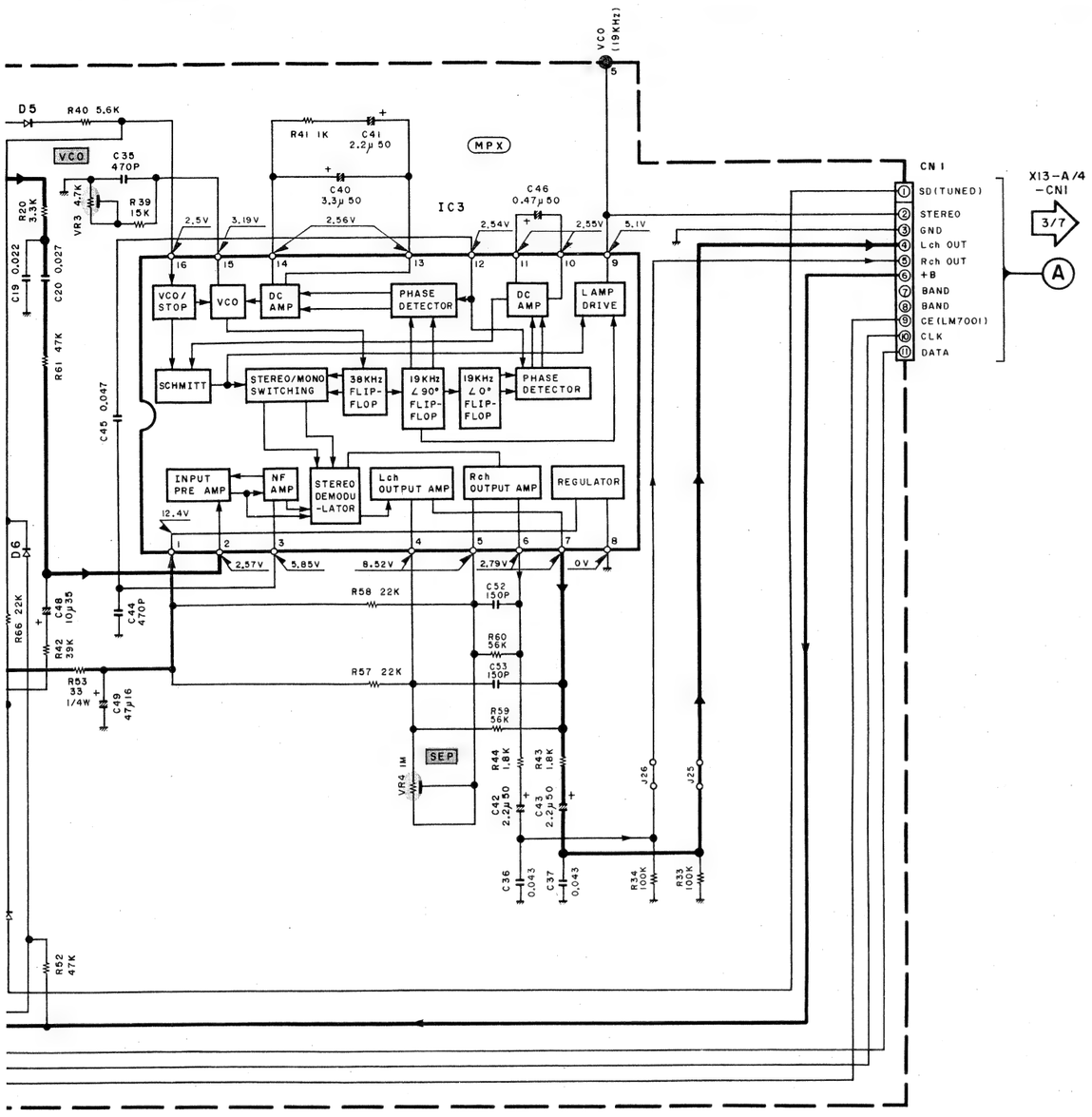


DISPLAY UNIT (X14-3700-10) (B/3)

Refer to the schematic diagram for the values of resistors and capacitors.

TUNER UNIT
(X05-3530-13)

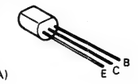




SIGNAL LINE
GND LINE
+B LINE
−B LINE

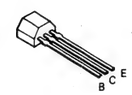
KC-X1(K)(1/7)

2SA733 (A)
2SC1845
2SC1923
2SC2003
2SC2878
2SC945 (A)

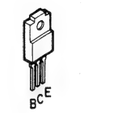


2SB772

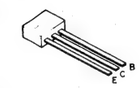
2SA1048
2SA933S
2SC1740S
2SC2458



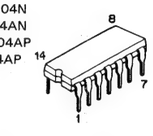
2SD2061



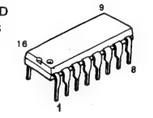
2SA1309A
2SC3311A



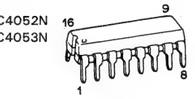
MC74HCU04N
MC74HC74AN
TC74HCU04AP
TC74HC74AP



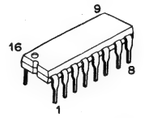
MM1067XD
XRU4053B



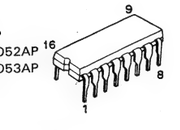
LM7001
MC74HC4052N
MC74HC4053N



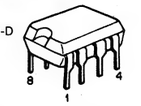
TC9184P



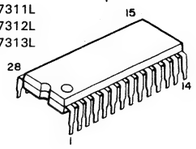
AN7470
BA12003
TC4053BP
TC74HC4052AP
TC74HC4053AP
TC9213P



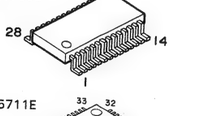
M5238L
NJM4580D-D



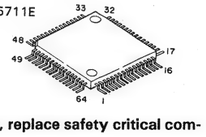
NJU7311L
NJU7312L
NJU7313L



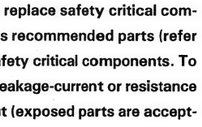
MC14577BP



PST529D



SM5840HP



MC74HC08AF
TC74HC08AF

TC9163N
TC9164N

NE657N

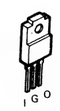
LA1265

LC83016E

PCM1700U

LC75711E

TA7805S
TA7808S
XRA17805T
XRA17808T



UPC7905HF
UPC7908HF

TA79005S
TA79008S

NJM4556L

DC voltages are as measured with a high-impedance voltmeter during reception of the FM broadcast signal (with a signal strength of 60 dB at the ANT terminal). Values may vary slightly due to variations between individual instruments or/and units. Values in parentheses are as measured during reception of the AM broadcast signal (with a signal strength of 60 dB at the ANT terminal).

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

Y05-2740-10

KC-X1

KENWOOD

SUB-CIRCUIT UNIT
(X13-7210-10)(A/4)(1/2)

(AUDIO)

PHONO Lch / Rch

CD Lch / Rch

TAPE 1 REC Lch / Rch

TAPE 1 PLAY Lch / Rch

TAPE 2 REC Lch / Rch

TAPE 2 PLAY Lch / Rch

VIDEO 1 REC Lch / Rch

VIDEO 1 PLAY Lch / Rch

VIDEO 2 REC Lch / Rch

VIDEO 2 PLAY Lch / Rch

VIDEO 3 REC Lch / Rch

VIDEO 3 PLAY Lch / Rch

VIDEO 4 PLAY Lch / Rch

PRE EQ

IC17(1/2)

IC17(2/2)

MUTE 2 (TAPE2)

IC1 INPUT SELECTOR

IC2 INPUT SELECTOR, TONE ON/OFF

CP10 100K x 3

CP9 100K x 3

TAPE 2 MUTE DRIVE

SELECTOR MUTE DRIVE

T. MUTE DRIVE

TUNER MUTE

MUTE1 (SELEC.)

BUFFER

IC3 (1/2)

IC3 (2/2)

IC27(1/2)

IC27(2/2)

IC4 ELECTRIC VOL. (L/Rch)

IC6 (1/2)

IC6 (2/2)

IC7 ELECTRIC VOL. (C/SWch)

IC8 (1/2)

IC8(2/2)

IC9 (1/2)

IC9 (2/2)

IC10 ELECTRIC VOL. (LS/RS ch)

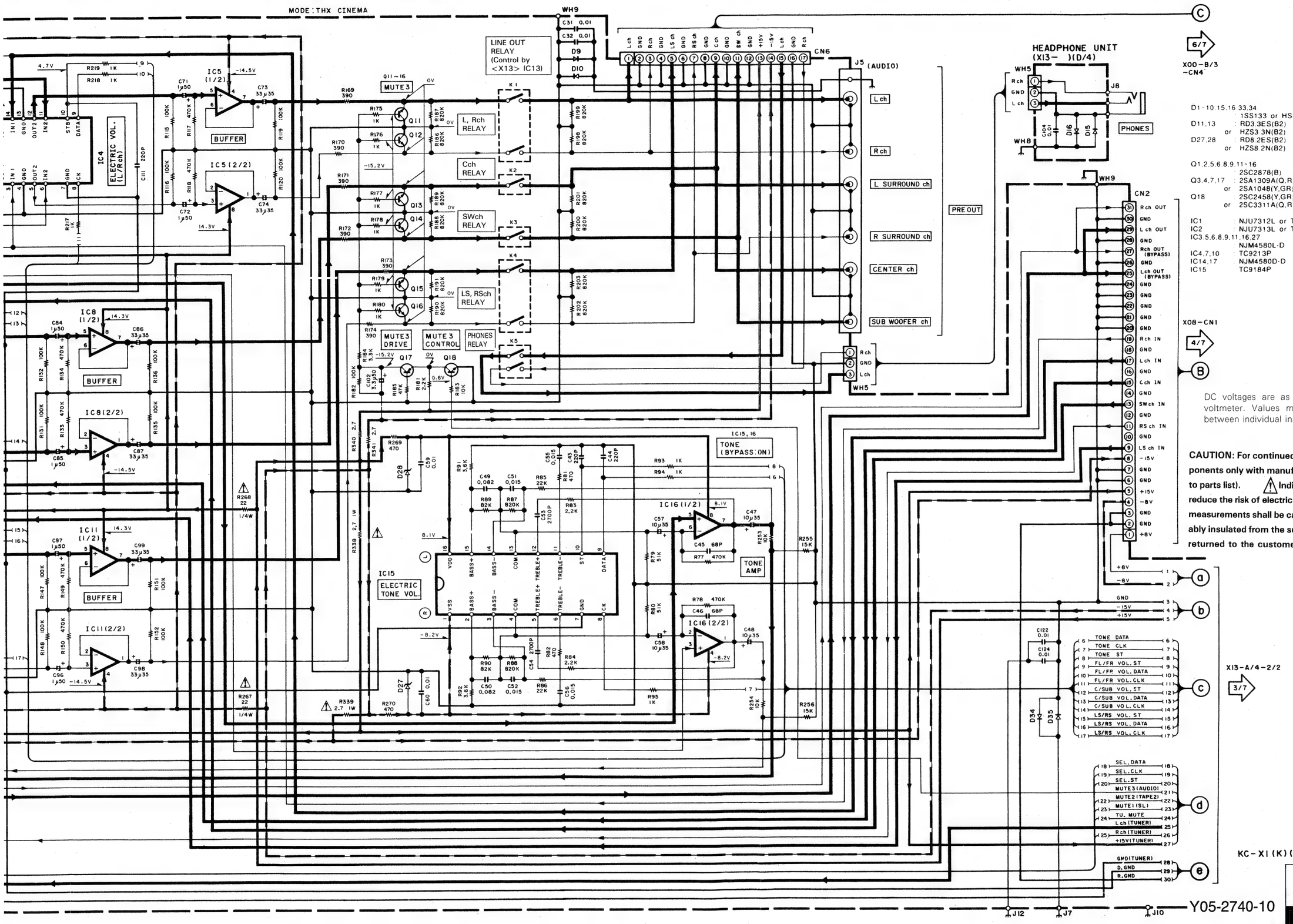
IC11(1/2)

IC11(2/2)

IC14 (1/2)

IC14 (2/2)

SIGNAL LINE
GND LINE
+B LINE
-B LINE



D1~10.15.16.33.34 : 1SS133 or HSS104
D11,13 : RD3.3ES(B2) or HZS3 3N(B2)
D27,28 : RD8.2ES(B2) or HZS8 2N(B2)

Q1.2.5.6.8.9.11~16 : 2SC2878(B)
Q3.4.7.17 : 2SA1309A(Q,R) or 2SA1048(Y,GR)
Q18 : 2SC2458(Y,GR) or 2SC3311A(Q,R)

IC1 : NJU7312L or TC9163N
IC2 : NJU7313L or TC9164N
IC3.5.6.8.9.11.16.27 : NJM4580L-D
IC4.7.10 : TC9213P
IC14.17 : NJM4580D-D
IC15 : TC9184P

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KC-X1
KENWOOD

SUB-CIRCUIT UNIT (X13-7210-10)(A/4)(2/2)

REMOTE(DIN CONNECTOR) (REAR PANEL VIEW)

J6

SUB RELAY

CENTER RELAY

FRONT RELAY

SURROUND RELAY

SUB WOOFER ON/OFF SW

S1 OFF ON

RELAY DRIVE IC13

IC13

PIN No. ③-⑦ ⑪-⑮	RELAY K1-K5
4.0V	0.7V ON
0V	12V OFF

R226 100, R214 100, R215 100, R216 100

R204 1K, R205 1K, R206 1K, R207 1K, R208 1K

R209 5Ω, R210 5Ω, R211 5Ω, R212 5Ω, R213 5Ω

K1 L.Rch RELAY

K2 Cch RELAY

K3 SWch RELAY

K4 LS,RSch RELAY

K5 PHONES RELAY

FIRST OFF POWER OFF/ON

R261 1K, R260 10K, C119 4.7μ35, Q20, D26

CP8 1K x 13

CP7 1K x 12

CP1 10K x 3

CP3 100K x 7

CP2 100K x 5

CP6 100K x 10

CP5 10K x 9

CP4 10K x 8

IC18 μ-COM (VOL.AUDIO/VISUAL SEL.) RELAY, MUTE, THX, DSP)

(BOTTOM VIEW)

MUTE2 (TAPE2)
MUTE1 (SEL)
SEL.DATA
SEL.CLK
SEL.STI
H.PHONE RELAY
FRONT RELAY
CENTER RELAY
SW RELAY
SURROUND RELAY
POWER RELAY
VDD(5V)
IC.VPP (GND)
M.START
M.REQ
M.REDY
MUTE5(DSP)

MUTE3 (AUDIO)
TONE.CLK
TONE.DATA
TONE.ST
FL/FR VOL.CLK
FL/FR VOL.DATA
VLOAD(GND)
FL/FR.VOL.ST
C/SW VOL.CLK
C/SW VOL.DATA
C/SW VOL.ST
LS/RS VOL.CLK
LS/RS VOL.DATA
LS/RS VOL.ST
V SEL.A
V SEL.B

MUTE4 (MONI)
ADC.POWER
DSP OFF
BYPASS MUTE
D1.SIRQ
D2.SIRQ
VDD(5V)
D2 SICK/M.CLK
D2 SI/M.DT
D2RDY
DIRDY
DISICK
DISI
M.RESET
DSP2.RESET
DSP1.RESET
AVSS(GND)
D2SIAK
DISIAK

DATA MUTE IC19 (BOTTOM VIEW)

VCC, GND

+12V AVR, R104 1.2Ω, C61 47μ16, C64 10μ35, Q10

X1 4.19MHz

C166 220μ6.3, C167 0.01

C168 100μ10, D23

D20 25.3V, C158 2200μ25, C159 2200μ25, -27.3V

D19 11.5V, -11.6V

D18 13.8V, C160 2200μ16, C161 2200μ16, -14.7V

-42V AVR, -43.6V, -59.8V, Q19, -44.1V, R250 4.7K, C165 100μ63, D22 D21, C164 47μ63, C163 0.01

R336 10K, D31

R337 4.7

R321 100, R322 100, R324 100

R327 100, R330 100, R329 100, R325 100, R326 100, R328 100

+8V, -8V, GND, -15V, +15V

TONE DATA, TONE CLK, TONE ST, FL/FR VOL.ST, FL/FR VOL.DATA, FL/FR VOL.CLK, C/SUB VOL.ST, C/SUB VOL.DATA, C/SUB VOL.CLK, LS/RS VOL.ST, LS/RS VOL.DATA, LS/RS VOL.CLK

SEL.DATA, SEL.CLK, SEL.ST, MUTE3 (AUDIO), MUTE2 (TAPE2), MUTE1 (SL), TU.MUTE, Lch (TUNER), Rch (TUNER), +15V(TUNER)

GND(TUNER), D.GND, R.GND

X13-A/4-1/2 2/7

X05-CN1 1/7

J9 CN1: SD, STEREO, GND, Lch, Rch, +12V, BAND, BAND, TU.ST, TU.CLK, TU.DATA

CN3: TU.MUTE, TU.DATA, TU.CLK, TU.ST, STEREO, SD

WH4: +6V, R.GND, -6V, S.DATA, S.BUSY, OS.SYNC, OS.DATA, OS.CLK, OS.ST, OS.BUSY, MUTE (MONI), V SEL.B, V SEL.A

CN5: DT.MUTE, M.RESET, M.START, M.REQ, M.CLK, M.DT, M.REDY, OS.BUSY, OS.ST, OS.CLK, OS.DATA, OS.SYNC, SUB SW OFF, S.BUSY, S.DATA, AC, AC, AC, AC, D.GND, D.GND, -42V, +5.6V

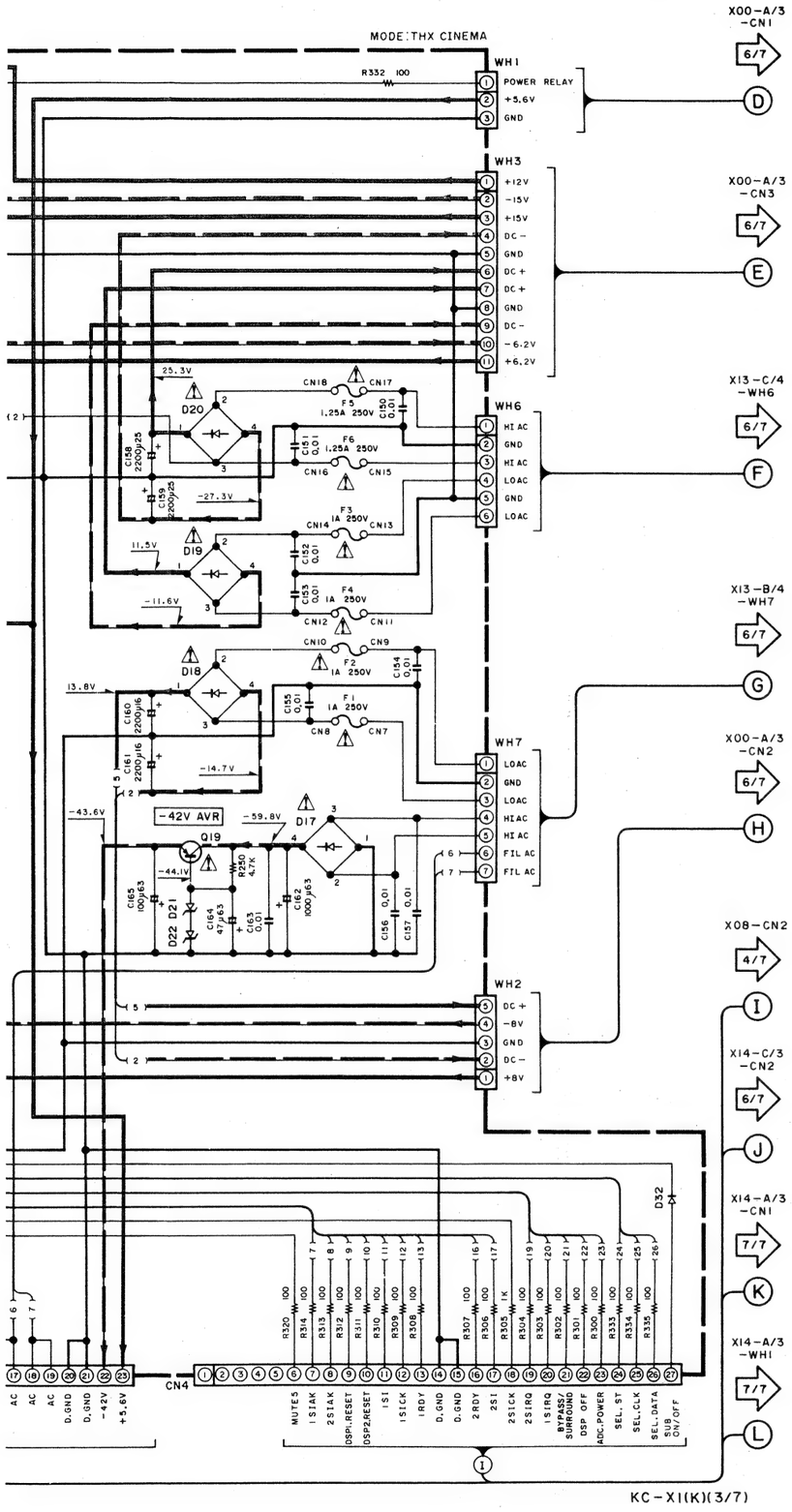
CN4

SIGNAL LINE
GND LINE
+B LINE
−B LINE

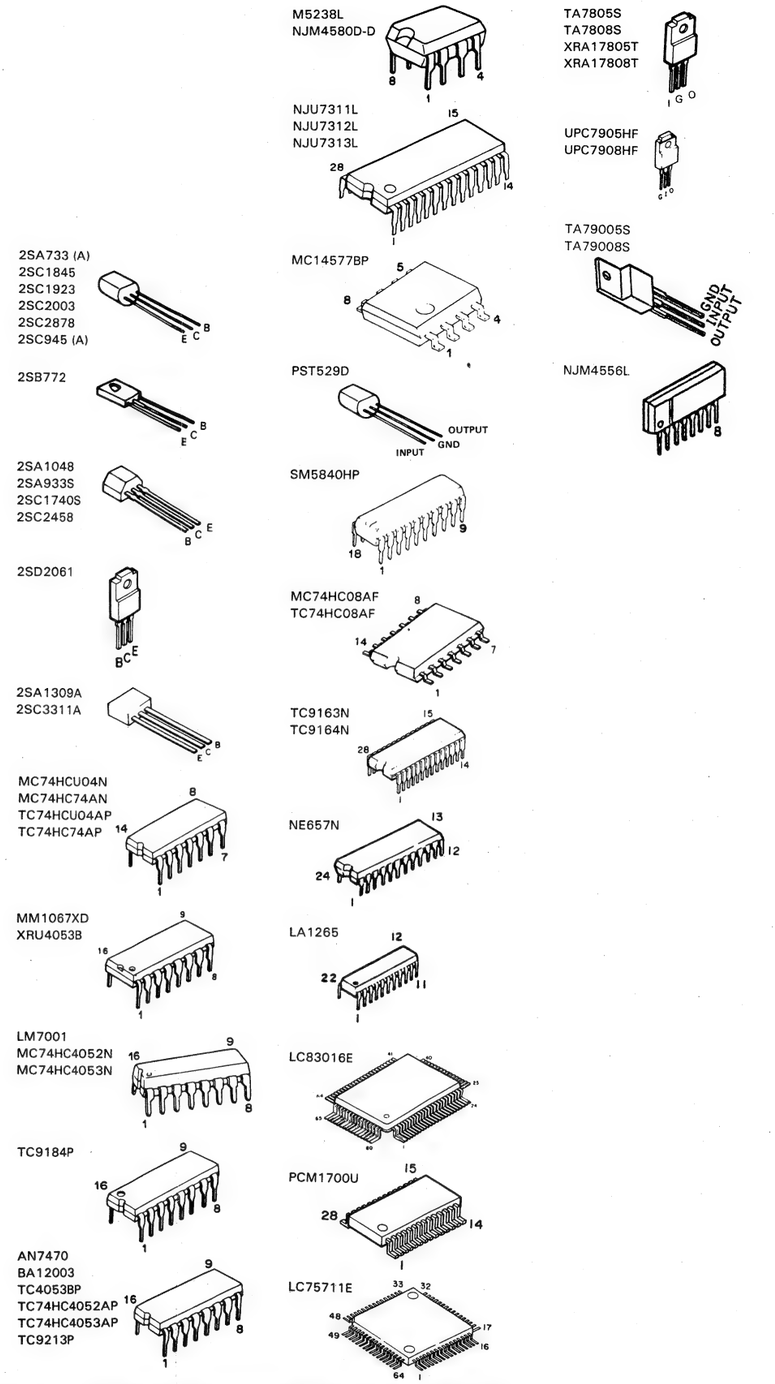
IC13 : BA12003
IC18 : μPD78043GF-020
IC19 : MC74HC08AF
or TC74HC08AF

Q10 : 2SC2003(L,K)
Q19 : 2SB722
Q20 : 2SC2458(Y,GR)
or 2SC3311A(Q,R)

D17~20 : KBP02ML-6127
D21 : RD20ES(B) or HZS20N(B)
D22 : RD24ES(B) or HZS24N(B)
D23,26,31,32 : 1SS133 or HSS104



DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

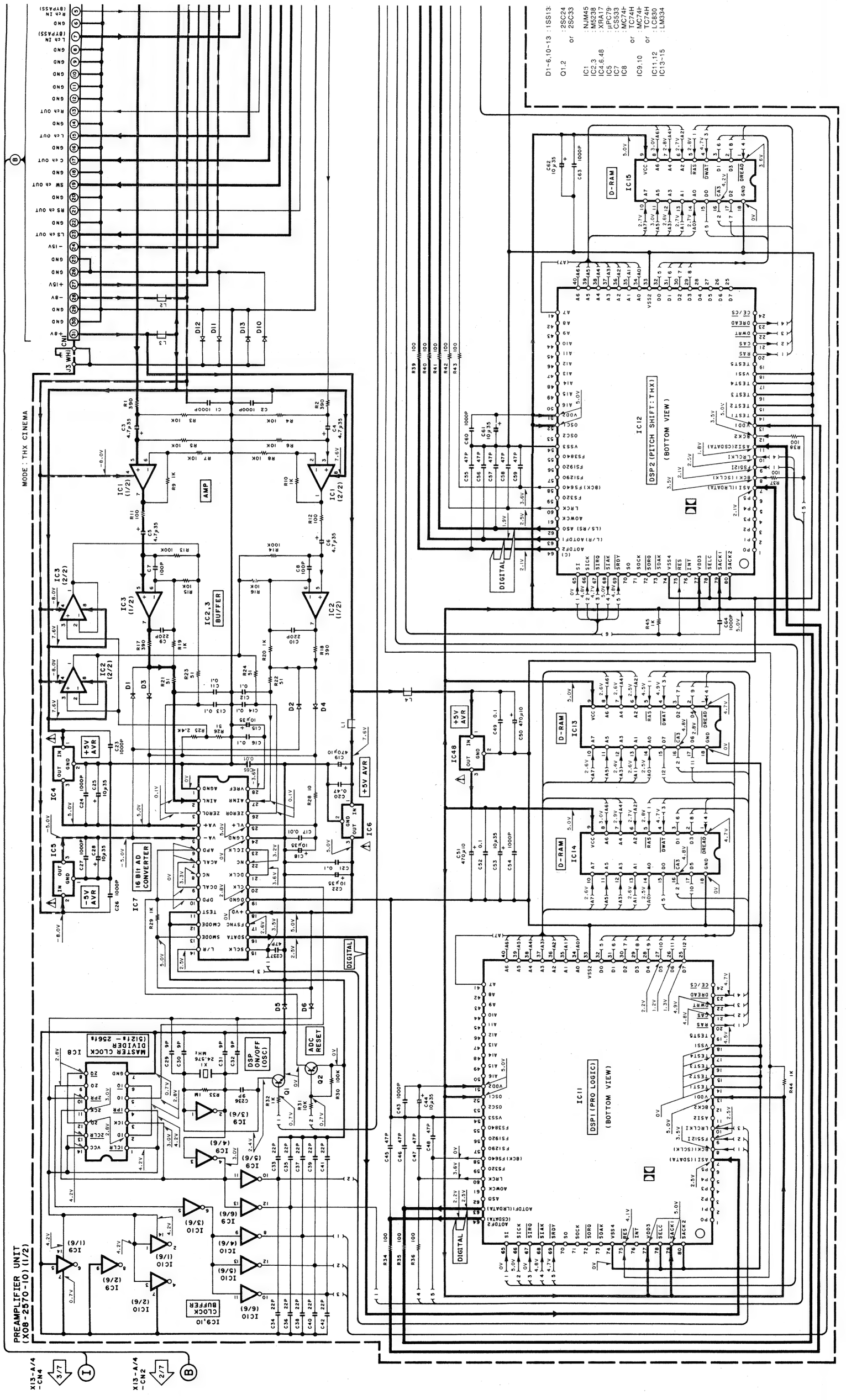


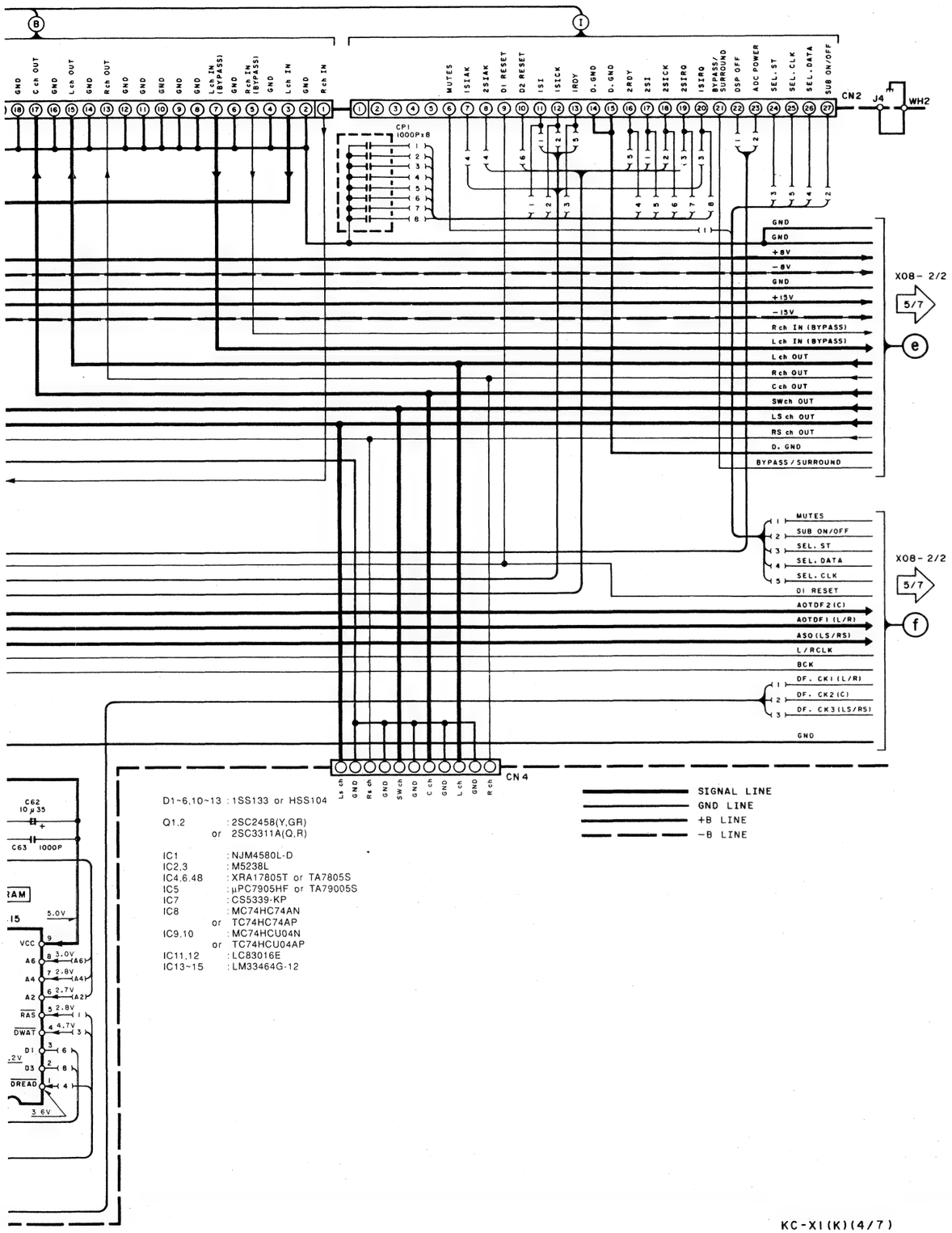
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

Y05-2740-10

KC-X1

KENWOOD


PREAMPLIFIER UNIT
(X08-2570-10) (1/2)
MODE : THX CINEMA
AMP
IC1 (1/2)
IC1 (2/2)
IC2,3 BUFFER
IC3 (1/2)
IC3 (2/2)
IC2 (1/2)
IC2 (2/2)
IC4
IC5
IC6
IC7
16 Bit AD CONVERTER
+5V AVR
-5V AVR
MASTER CLOCK DIVIDER (512fs - 256fs)
DSP ON/OFF (OSC)
ADC RESET
CLOCK BUFFER
IC9,10
IC11 DSP1 (PRO LOGIC) (BOTTOM VIEW)
IC12 DSP2 (PITCH SHIFT : THX) (BOTTOM VIEW)
IC15 D-RAM
IC13 D-RAM
IC14 D-RAM
DIGITAL
D1~6,10~13 : 1SS133
Q1,2 : 2SC24 or 2SC33
IC1 : NJM45
IC2,3 : MSB38
IC4,6,48 : μPC77
IC5 : CS5331
IC7 : MC74H
IC8 : TC74H or MC74H
IC9,10 : MC74H or TC74H
IC11,12 : LC830
IC13~15 : LM334
X13-A/4 -CN4
X13-A/4 -CN2



SIGNAL LINE
GND LINE
+B LINE
−B LINE

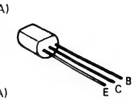
D1~6,10~13 : 1SS133 or HSS104

Q1,2 : 2SC2458(Y,GR)
or 2SC3311A(O,R)

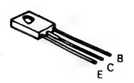
IC1 : NJM4580L-D
IC2,3 : M5238L
IC4,6,48 : XRA17805T or TA7805S
IC5 : μPC7905HF or TA79005S
IC7 : CS5339-KP
IC8 : MC74HC74AN
or TC74HC74AP
IC9,10 : MC74HCU04N
or TC74HCU04AP
IC11,12 : LC83016E
IC13~15 : LM33464G-12

KC-X1(K)(4/7)

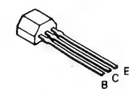
2SA733 (A)
2SC1845
2SC1923
2SC2003
2SC2878
2SC945 (A)



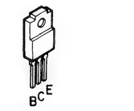
2SB772



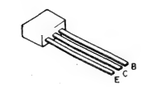
2SA1048
2SA933S
2SC1740S
2SC2458



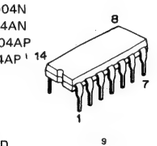
2SD2061



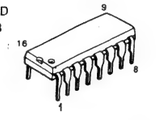
2SA1309A
2SC3311A



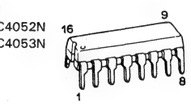
MC74HCU04N
MC74HC74AN
TC74HCU04AP
TC74HC74AP



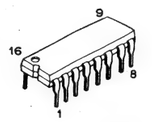
MM1067XD
XRU4053B



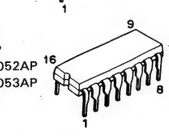
LM7001
MC74HC4052N
MC74HC4053N



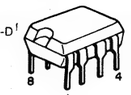
TC9184P



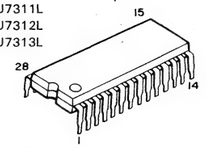
AN7470
BA12003
TC4053BP
TC74HC4052AP
TC74HC4053AP
TC9213P



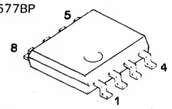
M5238L
NJM4580D-D



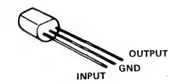
NJU7311L
NJU7312L
NJU7313L



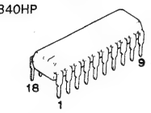
MC14577BP



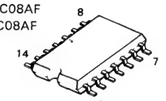
PST529D



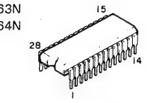
SM5840HP



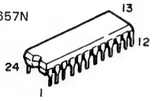
MC74HC08AF
TC74HC08AF



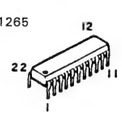
TC9163N
TC9164N



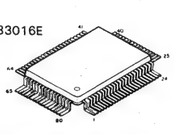
NE657N



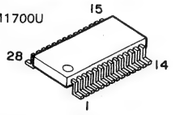
LA1265



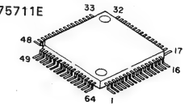
LC83016E



PCM1700U



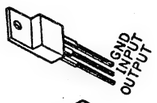
LC75711E



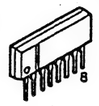
TA7805S
TA7808S
XRA17805T
XRA17808T

UPC7905HF
UPC7908HF

TA79005S
TA79008S



NJM4556L



DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

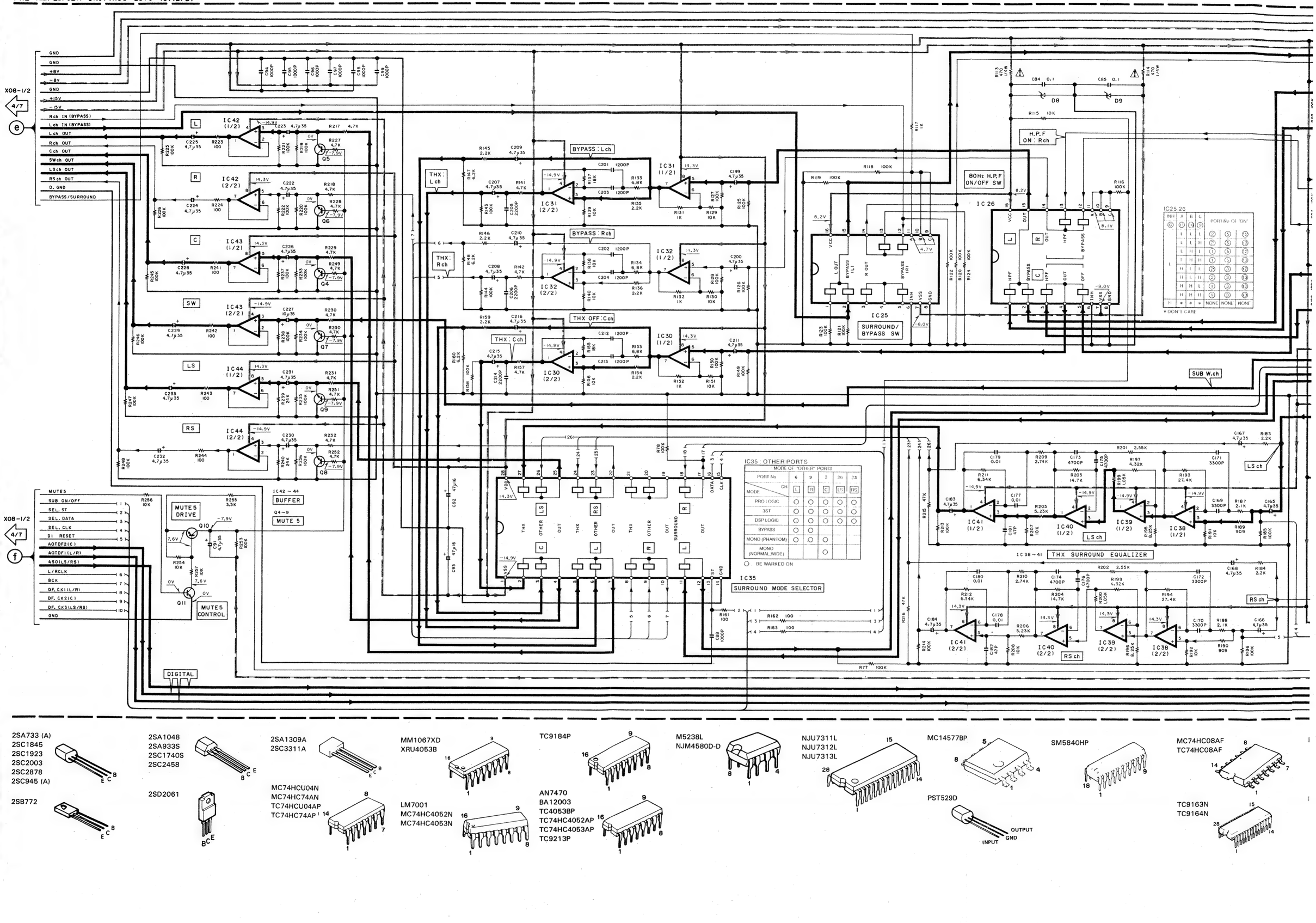
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

Y05-2740-10

KC-X1

KENWOOD

PRE AMPLIFIER UNIT(X08-2570-10)(2/2)



2SA733 (A)
2SC1845
2SC1923
2SC2003
2SC2878
2SC945 (A)

2SB772

2SA1048
2SA933S
2SC1740S
2SC2458

2SD2061

2SA1309A
2SC3311A

MC74HCU04N
MC74HC74AN
TC74HCU04AP
TC74HC74AP

MM1067XD
XRU4053B

LM7001
MC74HC4052N
MC74HC4053N

TC9184P

AN7470
BA12003
TC4053BP
TC74HC4052AP
TC74HC4053AP
TC9213P

M5238L
NJM4580D-D

NJU7311L
NJU7312L
NJU7313L

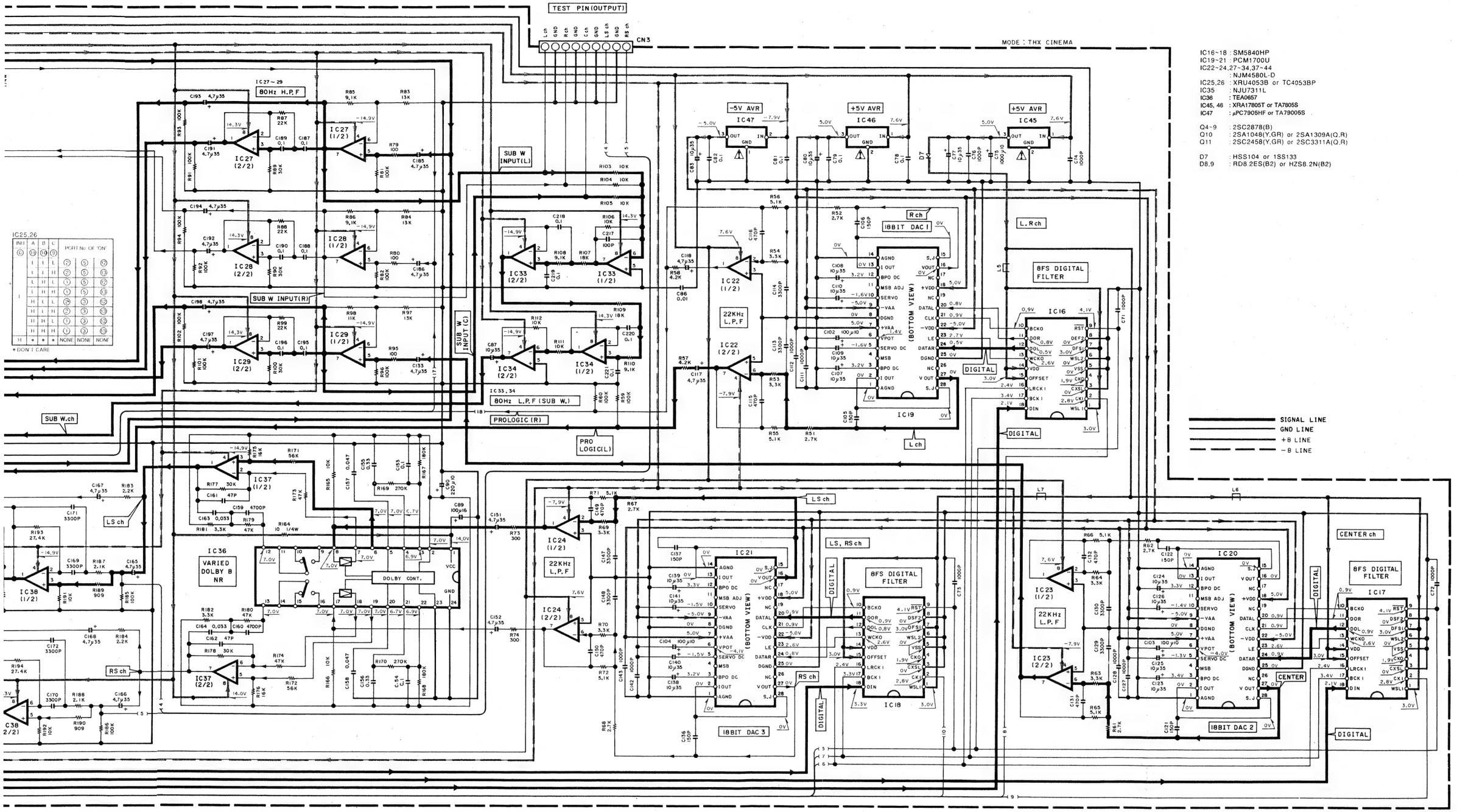
MC14577BP

PST529D

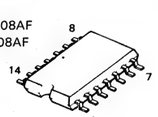
SM5840HP

MC74HC08AF
TC74HC08AF

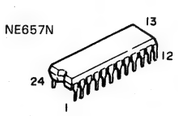
TC9163N
TC9164N



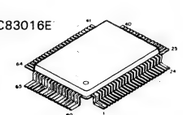
MC74HC08AF
TC74HC08AF



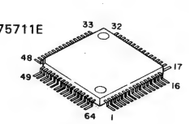
NE657N



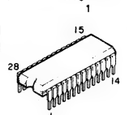
LC83016E



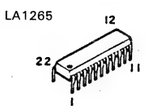
LC75711E



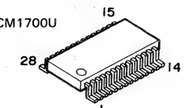
TC9163N
TC9164N



LA1265

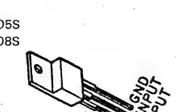


PCM1700U



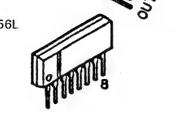
TA7805S
TA7808S
XRA17805T
XRA17808T

TA79005S
TA79008S



UPC7905HF
UPC7908HF

NJM4556L



DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

KC-X1(K)(5/7)

KC-X1

KENWOOD

Y05-2740-10

VIDEO CONTROL UNIT (XI4-3700-10)(C/3)

(VISUAL)

MODE : THX CINEMA

REC OUT / VIDEO 1 / PLAY IN — J1
REC OUT / VIDEO 2 / PLAY IN — J2
REC OUT / VIDEO 3 / PLAY IN — J3
VIDEO 4 PLAY IN
MONITOR OUT 1
MONITOR OUT2

IC1 (V1 REC) (MONI. OUT)
IC2 (V3 REC) (V2 REC)
IC1,2 VIDEO COMPOSITE SELECTOR

IC3 (1/2), IC3,4 VIDEO AMP
IC3 (2/2)
IC4 (1/2)
IC4 (2/2)

IC5 (1/2) V-MONI BUFFER
IC5 (2/2)
MONI. MUTE

IC6 SUPER-IMPOSE (ON SCREEN)
X1 14.31818 MHz
X2 504KHz

IC7 SYNC SEPARATE

IC8 (MONI. OUT)
IC8,9 S-TERMINAL SELECTOR
IC9 (V1,V2 REC OUT)

IC10 (1/2)
IC10 (2/2)
IC11 (1/2)
IC11 (2/2)
IC12 (1/2)
IC12 (2/2)
IC10~12 VIDEO AMP

CP1 4.7K x 4
CP2 4.7K x 3

Q1 Q2 Q3 Q4 Q5

CN2 → +6V, R.GND, −6V, S.DATA, S.BUSY, OS.SYNC, OS.DATA, OS.CLK, OS.ST, OS.BUSY, MUTE (MONI.), SEL.B, SEL.A

X13-A/4 −CN6 2/7 (C)
X13-A/4 −WH1 3/7 (D)
X13-A/4 −WH3 3/7 (E)
X13-A/4 −WH6 3/7 (F)
X13-A/4 −WH7 3/7 (G)
X13-A/4 −WH2 3/7 (H)
X13-A/4 −WH4 3/7 (J)

X14 IC1,2

CONTROL INPUTS			"ON" CONNECTION PORT
INHIBIT	B	A	
L	L	L	①-③, ⑫-⑬
L	L	H	③-⑤, ⑬-⑭
L	H	L	②-③, ⑬-⑮
L	H	H	③-④, ⑪-⑬

POWER SUPPLY UNIT (X00-2760-10)(A/3)

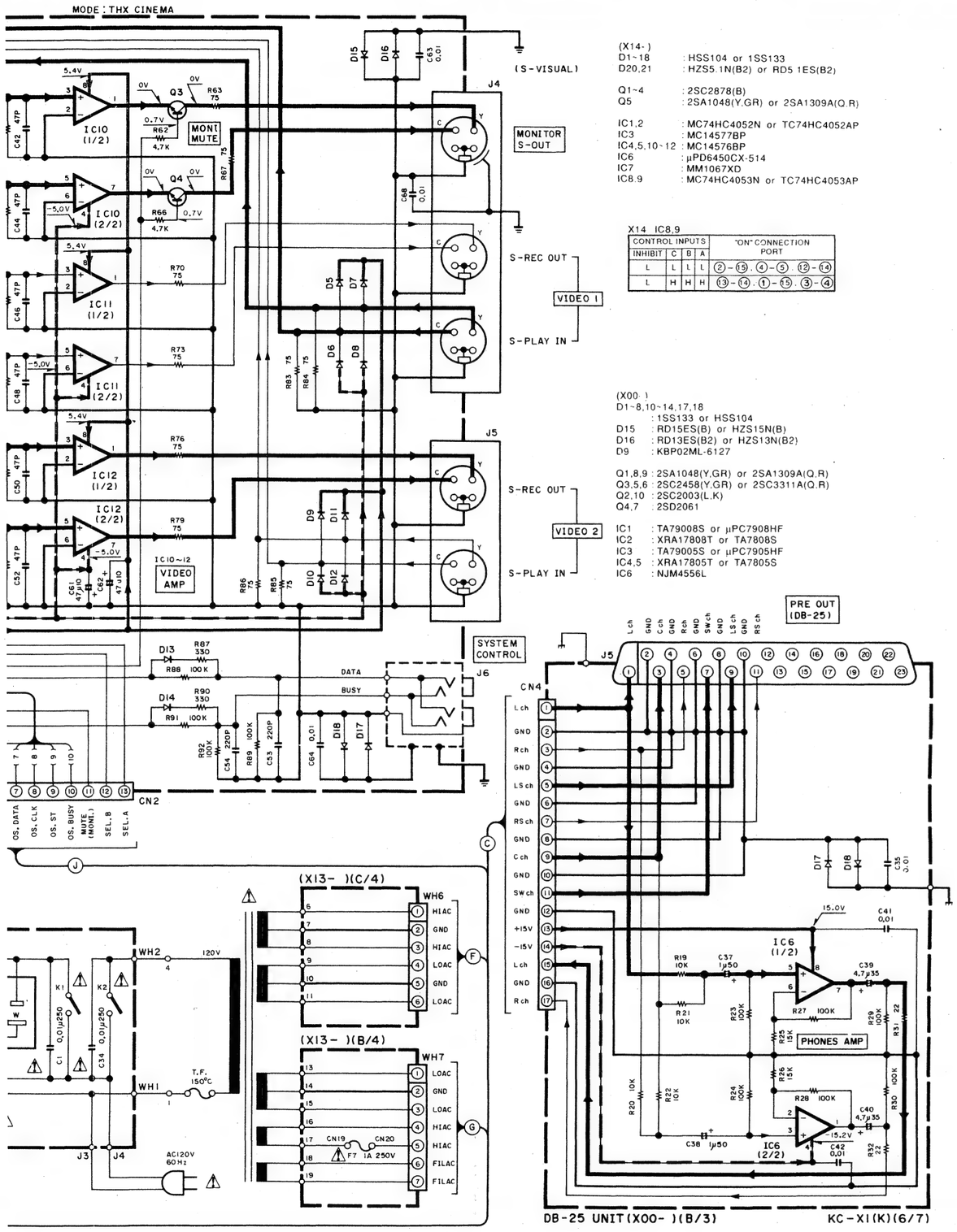
IC1 −8V AVR
IC2 +8V AVR
IC3 −6.2V AVR
IC4 +6.2V AVR
IC5 +5.6V AVR

Q10 +12V AVR
+15V AVR
−5V AVR
Q1 DRIVE
POWER RELAYS
POWER RELAY DRIVE
AUDIO +15V (POWER OFF)

CN3 → +12V, −15V, +15V, DC−, GND, DC+, DC+, GND, DC−, −6.2V, +6.2V
CN2 → +8V, DC−, GND, −8V, DC+
CN1 → POWER ON/OFF, +5.6V, GND

T1
J1 J2 J3 J4
K1 K2
AC120V 60Hz
T.F. 150°c

SIGNAL LINE
GND LINE
+B LINE
−B LINE



(X14-)
D1~18 : HSS104 or 1SS133
D20,21 : HZS5.1N(B2) or RD5.1ES(B2)

Q1~4 : 2SC2878(B)
Q5 : 2SA1048(Y,GR) or 2SA1309A(Q,R)

IC1,2 : MC74HC4052N or TC74HC4052AP
IC3 : MC14577BP
IC4,5,10~12 : MC14576BP
IC6 : μPD6450CX-514
IC7 : MM1067XD
IC8,9 : MC74HC4053N or TC74HC4053AP

X14 IC8,9

CONTROL INPUTS				"ON" CONNECTION PORT
INHIBIT	C	B	A	
L	L	L	L	②-⑮, ④-⑤, ⑫-⑭
L	H	H	H	⑬-⑭, ①-⑮, ③-④

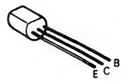
(X00-)
D1~8,10~14,17,18 : 1SS133 or HSS104
D15 : RD15ES(B) or HZS15N(B)
D16 : RD13ES(B2) or HZS13N(B2)
D9 : KBP02ML-6127

Q1,8,9 : 2SA1048(Y,GR) or 2SA1309A(Q,R)
Q3,5,6 : 2SC2458(Y,GR) or 2SC3311A(Q,R)
Q2,10 : 2SC2003(L,K)
Q4,7 : 2SD2061

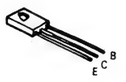
IC1 : TA79008S or μPC7908HF
IC2 : XRA17808T or TA7808S
IC3 : TA79005S or μPC7905HF
IC4,5 : XRA17805T or TA7805S
IC6 : NJM4556L

DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

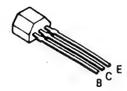
2SA733 (A)
2SC1845
2SC1923
2SC2003
2SC2878
2SC945 (A)



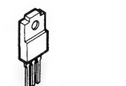
2SB772



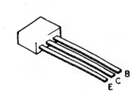
2SA1048
2SA933S
2SC1740S
2SC2458



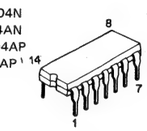
2SD2061



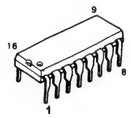
2SA1309A
2SC3311A



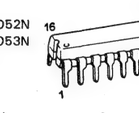
MC74HCU04N
MC74HC74AN
TC74HCU04AP
TC74HC74AP



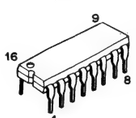
MM1067XD
XRU4053B



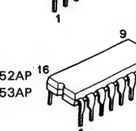
LM7001
MC74HC4052N
MC74HC4053N



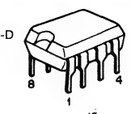
TC9184P



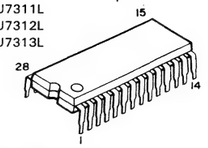
AN7470
BA12003
TC4053BP
TC74HC4052AP
TC74HC4053AP
TC9213P



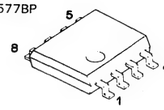
M5238L
NJM4580D-D



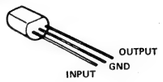
NJU7311L
NJU7312L
NJU7313L



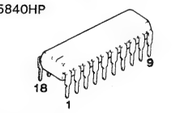
MC14577BP



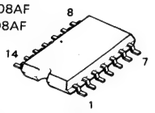
PST529D



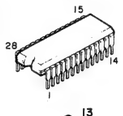
SM5840HP



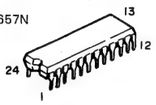
MC74HC08AF
TC74HC08AF



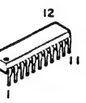
TC9163N
TC9164N



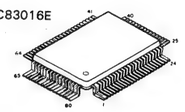
NE657N



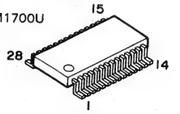
LA1265



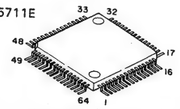
LC83016E



PCM1700U



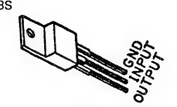
LC75711E



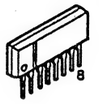
TA7805S
TA7808S
XRA17805T
XRA17808T

UPC7905HF
UPC7908HF

TA79005S
TA79008S



NJM4556L



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

Y05-2740-10

KC-X1

KENWOOD

DISPLAY UNIT
(X14-3700-10)(A/3)

MODE : THX CINEMA

ENCODER (X14-

XI3-A/4 -CN5 3/7 (K)

XI3-A/4 -CN3 3/7 (L)

BASS TREBLE

POWER S1 | UP S2 | DOWN S3 | UP S4 | DOWN S5 | TEST TONE S6 | TONE CONTROL S7 | CHANNEL LEVEL (PUSH MODE) KR0

PRESENCE UP S8 | PRESENCE DOWN S9 | DELAY UP S10 | DELAY DOWN S11 | CENTER MODE S12 | DIRECT S13 | AUTO S14 | P. CALL S15 KR1

1 S16 | 2 S17 | 3 S18 | 4 S19 | 5 S20 | TUNING UP S21 | TUNING DOWN S22 | BAND S23 KR2

6 S24 | 7 S25 | 8 S26 | 9 S27 | 0 S28 | +10 S29 | MEMORY S30 | MONO S31 KR3

THX CINEMA S32 | DOLBY PRO LOGIC S33 | 3 STEREO S34 | DSP LOGIC S35 | BYPASS S36 | VISUAL FIX S37 KR4

KS0 KS1 KS2 KS3 KS4 KS5 KS6 KS7

D59 REMOTE CONTROL SENSOR A1 VCC OUT GND 4.8V 2 4.8V 3 0V → REMOCON

VIDEO FIX D60 R100 560 → V. FIX

TAPE 2 D61 R101 560 → TAPE 2

MUTE D62 R102 560 → MUTE

POWER ON/STAND BY D63 R103 560 → STANBY

D58 D50 D51

R104 2.2K RESET IC(CE) IC13 IN OUT GND 1 3 2 5.4V 5.3V C100 1µ50 RESET Q6 5.0V R107 100K R106 100K 0V D52 C126 0.1µ50 C102 0.01 C103 68µ6.3 C104 0.047F6.3 R109 330 BACK UP CAPA. C128 68µ6.3 R105 1K C101 0.022

IC14 µ-COM (FL TUNER VIDEO LED) (BOTTOM VIEW)

CP8 220P x4 CP5 4.7K x3 CP3 4.7K x6 CP7 4.7K x3 CP6 4.7K x4

TO FLDRIVER 1 TO FLDRIVER 2 TO CONT µCOM TO CONT µCOM TO CONT µCOM TO VIDEO TO VIDEO

ENCODER 1 ENCODER 2 ENCODER 3 ENCODER 4

BALANCE S38 CHANNEL LEVEL S39

R118 100K R119 100K R123 100K R122 100K R116 47K R117 47K R121 47K R120 47K C105 0.01 C106 0.01 C108 0.01 C107 0.01

X3 4.19MHz R124 100K

TUNER CONT RESET SYS VIDEO CONT AMP µCOM CONT

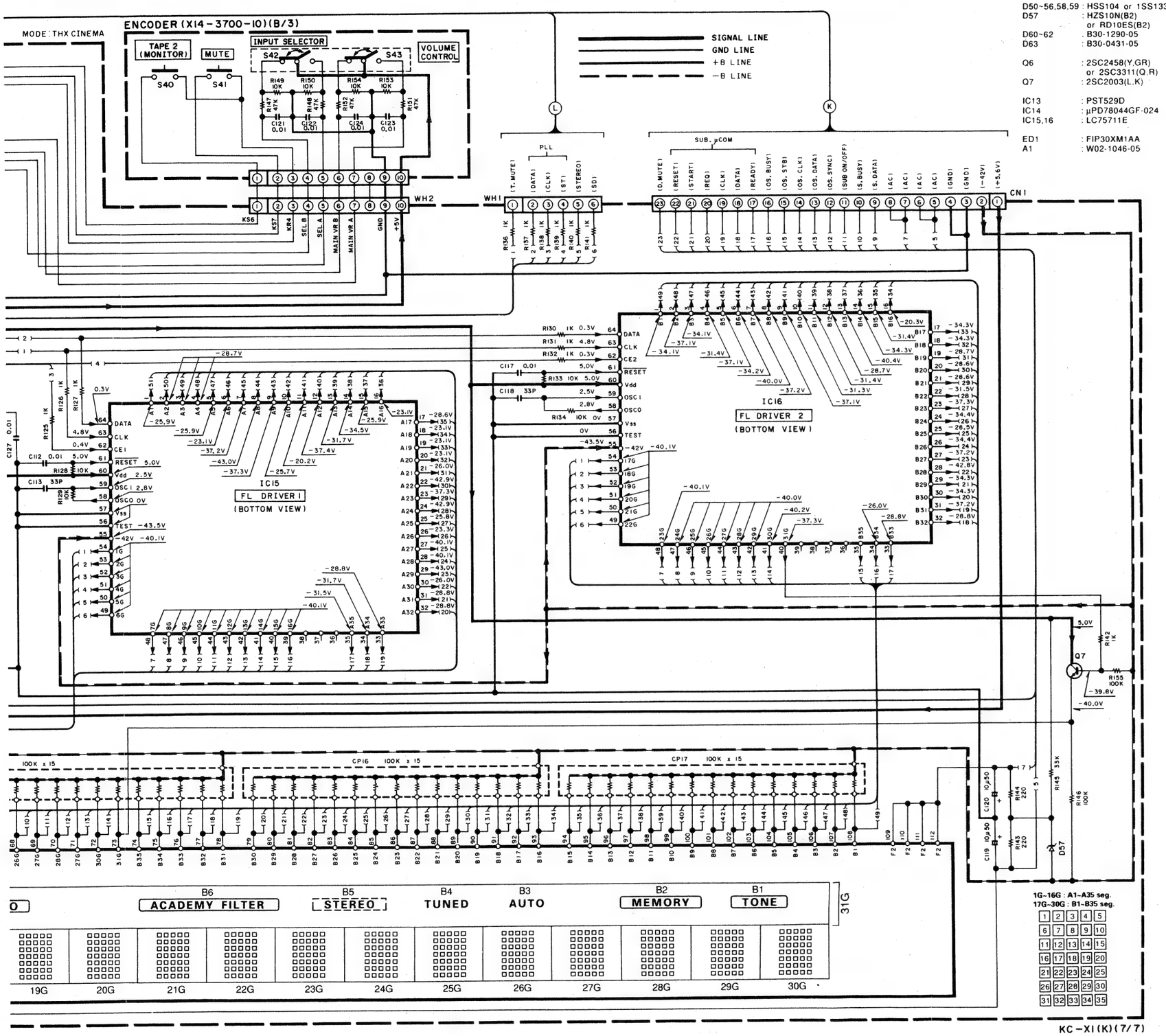
D55 D53 D56 D54 R160 100K

CP10 100K x4 CP11 100K x7 CP12 100K x15 CP13 100K x15 CP14 100K x15 CP15 100K x15

ED1

31G

B20	B19	B18	B17	B16	B11	B10	B9	B8	B7	B6
VISUAL OUT	V4 △B15	V3 △B14	V2 △B13	V1 △B12	HOME THX CINEMA	SURROUND	3 STEREO	DSP LOGIC	MONO	ACADEMY
1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	15G	16G	17G	18G	19G	20G	21G



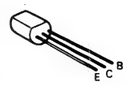
D50~56,58,59 : HSS104 or 1SS133
D57 : HZS10N(B2) or RD10ES(B2)
D60~62 : B30-1290-05
D63 : B30-0431-05

Q6 : 2SC2458(Y,GR) or 2SC3311(Q,R)
Q7 : 2SC2003(L,K)

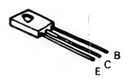
IC13 : PST529D
IC14 : μPD78044GF-024
IC15,16 : LC75711E

ED1 : FIP30XM1AA
A1 : W02-1046-05

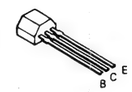
2SA733 (A)
2SC1845
2SC1923
2SC2003
2SC2878
2SC945 (A)



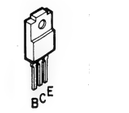
2SB772



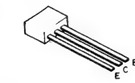
2SA1048
2SA933S
2SC1740S
2SC2458



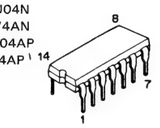
2SD2061



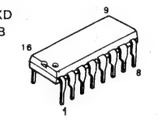
2SA1309A
2SC3311A



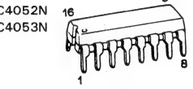
MC74HCU04N
MC74HC74AN
TC74HCU04AP
TC74HC74AP



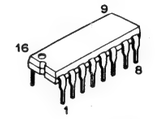
MM1067XD
XRU4053B



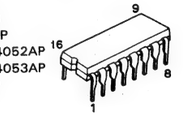
LM7001
MC74HC4052N
MC74HC4053N



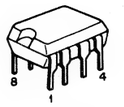
TC9184P



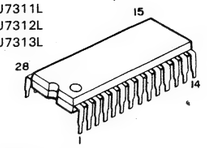
AN7470
BA12003
TC4053BP
TC74HC4052AP
TC74HC4053AP
TC9213P



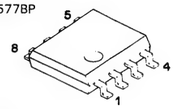
M5238L
NJM4580D-D



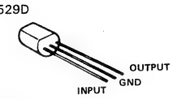
NJU7311L
NJU7312L
NJU7313L



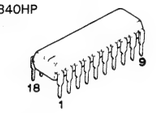
MC14577BP



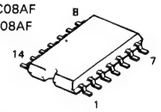
PST529D



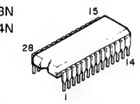
SM5840HP



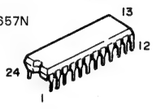
MC74HC08AF
TC74HC08AF



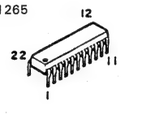
TC9163N
TC9164N



NE657N



LA1265



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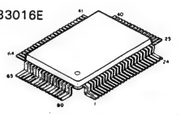
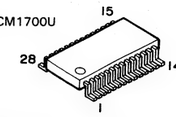
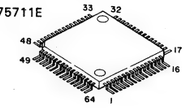


PCM1700U



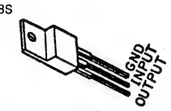
LC75711E



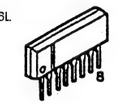
TA7805S
TA7808S
XRA17805T
XRA17808T

UPC7905HF
UPC7908HF

TA79005S
TA79008S



NJM4556L



DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.

CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

Y05-2740-10

KC-X1

KENWOOD

KC-X1 KC-X1

EXPLODED VIEW

A			:N08-0128-35
B	φ3x8	(BLK)	:N09-1445-05
C	φ2.6x8		:N09-2720-05
D			:N09-2979-05
E	φ3x8	(BLK)	:N89-3008-45
F	φ3x8		:N89-3006-46
G	φ4x8	(BLK)	:N89-4008-45
H	φ3x4	(BLK)	:N30-3004-45
J	φ2x5	(BLK)	:N09-2704-05
K	φ3		:N09-0333-05

Parts with the exploded numbers larger than 700 are not supplied.

× New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

❶

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
			KC-X1			
601	1B	*	A01-3002-01	METALLIC CABINET		
602	1A		A09-0140-03	BATTERY COVER		
603	2A	*	A29-0327-12	PANEL(DOOR)		
604	2A	*	A60-0340-21	PANEL ASSY		
605	3A	*	A60-0341-02	PANEL(FRONT)		
606	3A	*	B01-0495-22	PANEL ESCUTCHEON ASSY		
607	3B	*	B01-0496-21	PANEL ESCUTCHEON		
608	3B	*	B03-2813-03	DRESSING PLATE		
609	2A	*	B07-2235-12	ESCUTCHEON		
610	2A	*	B07-2236-12	ESCUTCHEON		
611	3B	*	B10-1954-13	FRONT GLASS		
612	3A		B12-0219-04	INDICATOR		
613	3A		B43-0287-04	KENWOOD BADGE		
-			B46-0092-33	WARRANTY CARD	K	
-			B46-0121-23	WARRANTY CARD	P	
-			B46-0197-00	QUESTIONAIRE CARD	K	
-		*	B60-1086-00	INSTRUCTION MANUAL(ENGLISH)		
-		*	B60-1087-00	INSTRUCTION MANUAL(FRENCH)	P	
620	2A		D39-0200-05	DAMPER		
⚠ 621	1D		E30-0978-05	AC POWER CORD		
622	1A		E30-2293-05	AUDIO CORD		
623	1A	*	E30-2732-05	CORD WITH DIN CONNECTOR		
624	1D	*	E35-0566-05	FLAT CABLE(17P)		
625	1C	*	E35-0567-05	FLAT CABLE(31P)		
626	1C	*	E35-0568-05	FLAT CABLE(27P)		
627	2B	*	E35-0574-05	FLAT CABLE(23P)		
628	2A	*	G02-1009-04	FLAT SPRING(L)		
629	2A	*	G02-1010-04	FLAT SPRING(R)		
630	2A	*	G02-1011-04	FLAT SPRING		
631	3A		G11-0191-04	SOFT TAPE (90X5X2.5)		
632	1A		G16-0804-04	OVERLAY SHEET(REMOCON)		
-		*	H10-5430-02	POLYSTYRENE FOAMED FIXTURE(L)		
-		*	H10-5431-02	POLYSTYRENE FOAMED FIXTURE(R)		
-		*	H12-2127-04	PACKING FIXTURE		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
-			H25-0319-04	PROTECTION BAG		
-		*	H50-0528-04	ITEM CARTON CASE		
640	3C, 3D		J02-1002-05	FOOT		
641	1A		J19-2815-04	ANTENNA HOLDER(STAND)		
642	2D		J19-3208-05	UNIT HOLDER		
643	1C		J19-3300-05	UNIT HOLDER		
644	2C		J19-3325-05	UNIT HOLDER		
⚠ 650	1D		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
651	3B	*	K29-5637-22	KNOB(THX CINEMA etc.)		
652	3B	*	K29-5638-14	KNOB ASSY(VOLUME CONTROL)		
653	3B	*	K29-5639-04	KNOB(CH.LEVEL,BALANCE)		
654	3B	*	K29-5640-04	KNOB(INPUT SELECTOR)		
⚠ 655	1B	*	L07-0637-05	POWER TRANSFORMER		

L:Scandinavia K:USA P:Canada
Y:PX(Far East, Hawaii) T:England E:Europe
Y:AAFES(Europe) X:Australia M:Other Areas

⚠ indicates safety critical components.

× New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnes dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.

❷

Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
A			N08-0128-35	BINDING POST		
B			N09-1445-05	SET SCREW (M3X8)		
C			N09-2720-05	TAPTITE SCREW (2.6X8)		
D		*	N09-2979-05	HEXAGON HEAD BOLT		
E			N89-3008-45	BINDING HEAD TAPTITE SCREW		
F			N89-3008-46	BINDING HEAD TAPTITE SCREW		
G			N89-4008-45	BINDING HEAD TAPTITE SCREW		
H			N30-3004-45	PAN HEAD MACHINE SCREW		
J			N09-2704-05	TAPTITE SCREW		
K			N09-0333-05	TAPPING SCREW (3X12)		
660	1A		T90-0173-05	LOOP ANTENNA(AM)		
661	1A		T90-0176-05	T TYPE ANTENNA(FM)		
662	1A		T90-0185-05	ANTENNA ADAPTOR		
665	1A	*	X94-1030-21	REMOTE CONTROL ASSY UNIT		
			POWER SUPPLY UNIT (X00-2760-10)			
⚠ C1			C91-1439-05	FILM 0.01UF 250VAC		
C2			CK45FF1H103Z	CERAMIC 0.010UF Z		
C3			CF92FV1H104J	MF 0.10UF J		
C4			CE04EW1E102M	ELECTRO 1000UF 25WV		
C5			CF92FV1H104J	MF 0.10UF J		
C6			CE04KW1A101M	ELECTRO 100UF 10WV		
C7			CK45FF1H103Z	CERAMIC 0.010UF Z		
C8			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C9 ,10			CF92FV1H103J	MF 0.010UF J		
C11 ,12			CE04KW1C470M	ELECTRO 47UF 16WV		
C13 ,14			CF92FV1H103J	MF 0.010UF J		
C15 ,16			CE04EW1C222M	ELECTRO 2200UF 16WV		
C17 ,18			CF92FV1H103J	MF 0.010UF J		
C19 ,20			CE04KW1C221M	ELECTRO 220UF 16WV		
C21 ,22			CF92FV1H103J	MF 0.010UF J		
C23 ,24			CE04KW1C221M	ELECTRO 220UF 16WV		
C25			CK45FB1H102K	CERAMIC 1000PF K		
C26			CE04KW1C220M	ELECTRO 22UF 16WV		
C27 ,28			CE04KW1C470M	ELECTRO 47UF 16WV		
C29			CE04KW1C220M	ELECTRO 22UF 16WV		
C30			CK45FB1H102K	CERAMIC 1000PF K		
C31 ,32			CE04KW1C470M	ELECTRO 47UF 16WV		
C33			CE04KW1C101M	ELECTRO 100UF 16WV		
⚠ C34			C91-1439-05	FILM 0.01UF 250VAC		
C35			CK45FF1H103Z	CERAMIC 0.010UF Z		
C37 ,38			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C39 ,40			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C41 ,42			C91-0769-05	CERAMIC 0.01UF K		
⚠ J1	1B		E03-0112-05	AC OUTLET(TOTAL 940W 7.8A MAX)		
J5	1D	*	E58-0003-05	RECTANGULAR RECEPTACLE(PREOUT)		
⚠ T1	1B		L01-7651-05	POWER TRANSFORMER		
⚠ R1			R92-0173-05	RC 2.2M M 1/2W		
⚠ R34			RD14NB2E100J	RD 10 J 1/4W		
⚠ K1			S51-1036-05	MAGNETIC RELAY(AC OUTLET)		
⚠ K2			S76-0009-05	MAGNETIC RELAY(POWER)		
D1 -8			HSS104	DIODE		

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Ref. No. 参照番号	Address 位置	New Parts 新	Parts No. 部品番号	Description 部品名／規格	Destination 仕向	Remarks 備考
D1 -8			1SS133	DIODE		
⚠ D9			KBP02ML-6127	DIODE		
D10 -14			HSS104	DIODE		
D10 -14			1SS133	DIODE		
D15			HZS15N(B)	ZENER DIODE		
D15			RD15ES(B)	ZENER DIODE		
D16			HZS13N(B2)	ZENER DIODE		
D16			RD13ES(B2)	ZENER DIODE		
D17 ,18			HSS104	DIODE		
D17 ,18			1SS133	DIODE		
⚠ IC1			TA79008S	IC(VOLTAGE REGULATOR/ -8V)		
⚠ IC1			UPC7908HF	IC(VOLTAGE REGULATOR/ -8V)		
⚠ IC2			TA7808S	IC(VOLTAGE REGULATOR/ +8V)		
⚠ IC2		*	XRA17808T	IC(VOLTAGE REGULATOR/ +8V)		
⚠ IC3			TA79005S	IC(VOLTAGE REGULATOR/ -5V)		
⚠ IC3			UPC7905HF	IC(VOLTAGE REGULATOR/ -5V)		
⚠ IC4 ,5			TA7805S	IC(VOLTAGE REGULATOR/ +5V)		
⚠ IC4 ,5		*	XRA17805T	IC(VOLTAGE REGULATOR/ +5V)		
IC6			NJM4556L	IC(OP AMP)		
Q1			2SA1048(Y,GR)	TRANSISTOR		
Q1			2SA1309A(Q,R)	TRANSISTOR		
Q2			2SC2003(L,K)	TRANSISTOR		
Q3			2SC2458(Y,GR)	TRANSISTOR		
Q3			2SC3311A(Q,R)	TRANSISTOR		
⚠ Q4			2SD2061	TRANSISTOR		
Q5 ,6			2SC2458(Y,GR)	TRANSISTOR		
Q5 ,6			2SC3311A(Q,R)	TRANSISTOR		
⚠ Q7			2SD2061	TRANSISTOR		
Q8 ,9			2SA1048(Y,GR)	TRANSISTOR		
Q8 ,9			2SA1309A(Q,R)	TRANSISTOR		
⚠ Q10			2SC2003(L,K)	TRANSISTOR		
			TUNER UNIT (X05-3530-13)			
C1 ,2			CK45FF1H103Z	CERAMIC 0.010UF Z		
C3			CC93FCH1H391J	CERAMIC 390PF J		
C4			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C5			CE04KW1V100M	ELECTRO 10UF 35WV		
C6			CK45FF1H103Z	CERAMIC 0.010UF Z		
C7			CK45FF1H223Z	CERAMIC 0.022UF Z		
C8 ,9			CK45FF1H103Z	CERAMIC 0.010UF Z		
C10			CK45FF1H223Z	CERAMIC 0.022UF Z		
C11 ,12			CK45FF1H103Z	CERAMIC 0.010UF Z		
C13 -15			CE04KW1C470M	ELECTRO 47UF 16WV		
C16			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C17			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C18			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C19			CF92FV1H223J	MF 0.022UF J		
C20			CF92FV1H273J	MF 0.027UF J		
C21			CK45FF1H223Z	CERAMIC 0.022UF Z		
C22			CC45FSL1H101J	CERAMIC 100PF J		
C23			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C24			CF92FV1H273J	MF 0.027UF J		
C25			CC45FCH1H220J	CERAMIC 22PF J		
C26			CK45FF1H103Z	CERAMIC 0.010UF Z		
C27			CE04KW1H010M	ELECTRO 1.0UF 50WV		

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C28			CC45FCH1H220J	CERAMIC 22PF J		
C29 -31			CC45FSL1H101J	CERAMIC 100PF J		
C32			CK45FF1H103Z	CERAMIC 0.010UF Z		
C35			CC93FCH1H471J	CERAMIC 470PF J		
C36 ,37			CF92FV1H433J	MF 0.043UF J		
C40			CE04KW1H3R3M	ELECTRO 3.3UF 50WV		
C41 -43			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C44			CK45FB1H471K	CERAMIC 470PF K		
C45			CF92FV1H473J	MF 0.047UF J		
C46			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C48			CE04KW1V100M	ELECTRO 10UF 35WV		
C49			CE04KW1C470M	ELECTRO 47UF 16WV		
C52 ,53			CC45FSL1H151J	CERAMIC 150PF J		
TC1 ,2			C05-0303-05	TRIMMER 20PF		
E2	2D		E20-0321-05	LOCK TERMINAL BOARD(ANTENNA)		
CF1 ,2			L72-0531-05	CERAMIC FILTER		
CF3			L72-0099-05	CERAMIC FILTER		
CF4			L72-0096-05	CERAMIC FILTER		
L1			L40-1091-17	SMALL FIXED INDUCTOR(1UH)		
L2			L40-1021-14	SMALL FIXED INDUCTOR(1.0mH,K)		
L3			L40-1091-17	SMALL FIXED INDUCTOR(1UH)		
L4			L30-0484-05	FM IFT<DISCRIMINATOR>		
L5			L30-0485-05	FM IFT<DISTORTION,MONO>		
L8			L31-0509-05	MW-RF COIL<RF ALIGNMENT>		
L9			L32-0277-15	MW OSCILLATING COIL<BAND EDGE>		
L10			L30-0362-05	AM IFT<IF TRANSFORMER>		
X1			L77-1122-05	CRYSTAL RESONATOR(7.2MHZ)		
R14			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R22 ,23			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R24			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R53			RD14GB2E330J	FL-PROOF RD 33 J 1/4W		
VR1			R12-3130-05	TRIMMING POT 33K<FM T-LEVEL>		
VR2			R12-3126-05	TRIMMING POT 10K<AM T-LEVEL>		
VR3			R12-1089-05	TRIMMING POT 4.7K<VCO>		
VR4			R12-8015-05	TRIMMING POT 1M<SEPARATION>		
D1 ,2			1SS133	DIODE		
D1 ,2			1SS176	DIODE		
D3			HZS5.1N(B2)	ZENER DIODE		
D3			RD5.1ES(B2)	ZENER DIODE		
D4 -6			1SS133	DIODE		
D4 -6			1SS176	DIODE		
D7			KV1236(Z2)	VARIABLE CAPACITANCE DIODE		
IC1			LA1265	IC(FM/AM TUNER)		
IC2			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC3			AN7470	IC(FM MPX)		
Q1			2SC1923(R,O)	TRANSISTOR		
Q2			2SC1740S(Q,R)	TRANSISTOR		
Q2			2SC945(A)(Q,P)	TRANSISTOR		
Q3			2SC1845(F,E)	TRANSISTOR		
Q7 ,8			2SA733(A)(Q,P)	TRANSISTOR		
Q7 ,8			2SA933S(Q,R)	TRANSISTOR		
DT1	2D		W02-0699-05	FM FRONT-END ASSY		

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PARTS LIST KC-X1

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C113			C91-0749-05	CERAMIC 220PF K		
C115-119			CE04KW1V4R7M	ELECTRO 4.7UF 35WV		
C122			C91-0769-05	CERAMIC 0.01UF K		
C124			C91-0769-05	CERAMIC 0.01UF K		
C150-157			CK45FF1H103Z	CERAMIC 0.010UF Z		
C158,159			CE04EW1E222M	ELECTRO 2200UF 25WV		
C160,161			CE04EW1C222M	ELECTRO 2200UF 16WV		
C162			CE04KW1J102M	ELECTRO 1000UF 63WV		
C163			CK45FF1H103Z	CERAMIC 0.010UF Z		
C164			CE04KW1J470M	ELECTRO 47UF 63WV		
C165			CE04DW1J101M	ELECTRO 100UF 63WV		
C166			CE04KW0J221M	ELECTRO 220UF 6.3WV		
C167			CK45FF1H103Z	CERAMIC 0.010UF Z		
C168			CE04KW1A101M	ELECTRO 100UF 10WV		
J1	2D	*	E63-0100-05	PHONO JACK(PHONO INPUT)		
J2 -4	2D	*	E63-0075-05	PHONO JACK(CD,TAPE,VIDEO)		
J5	2D	*	E63-0074-05	PHONO JACK(PREOUT)		
J6	2D		E06-0806-05	CYLINDRICAL RECEPTACLE(REMOTE)		
J8	2B		E11-0208-05	PHONE JACK(PHONES)		
⚠ F1 -4			F04-1026-05	FUSE (UL) (250V 1A)		
⚠ F5 ,6		*	F06-1222-05	FUSE (UL) (250V 1.25A)		
⚠ F7			F04-1026-05	FUSE (UL) (250V 1A)		
CN7 -20			J13-0075-05	FUSE CLIP		
X1			L78-0267-05	RESONATOR (4.194MHZ)		
CP1			R90-0878-05	MULTI-COMP 10KX3		
CP2			R90-0855-05	MULTI-COMP 100KX5 J		
CP3			R90-0803-05	MULTI-COMP 100KX7 J 1/4W		
CP4			R90-0805-05	MULTI-COMP 10KX8 J 1/4W		
CP5		*	R90-0895-05	MULTI-COMP 10KX9		
CP6			R90-0802-05	MULTI-COMP 100KX10 J 1/4W		
CP7		*	R90-0906-05	MULTI-COMP 1.0KX12 J		
CP8		*	R90-0907-05	MULTI-COMP 1.0KX13 J		
CP9 ,10			R90-0850-05	MULTI-COMP 100KX3 J 1/6W		
⚠ R267,268			RD14NB2E220J	RD 22 J 1/4W		
⚠ R338,339			RS14KB3A2R7J	FL-PROOF RS 2.7 J 1W		
K1 -5			S51-2089-05	MAGNETIC RELAY(PREOUT)		
S1	2D		S31-2094-05	SLIDE SWITCH(S.WOOFER ON/OFF)		
D1 -10			HSS104	DIODE		
D1 -10			1SS133	DIODE		
D11			HZS3.3N(B2)	ZENER DIODE		
D11			RD3.3ES(B2)	ZENER DIODE		
D13			HZS3.3N(B2)	ZENER DIODE		
D13			RD3.3ES(B2)	ZENER DIODE		
D15 ,16			HSS104	DIODE		
D15 ,16			1SS133	DIODE		
⚠ D17 -20			KBP02ML-6127	DIODE		
D21			HZS20N(B)	ZENER DIODE		
D21			RD20ES(B)	ZENER DIODE		
D22			HZS24N(B)	ZENER DIODE		
D22			RD24ES(B)	ZENER DIODE		
D23			HSS104	DIODE		
D23			1SS133	DIODE		

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D26			HSS104	DIODE		
D26			1SS133	DIODE		
D27 ,28			HZS8.2N(B2)	ZENER DIODE		
D27 ,28			RD8.2ES(B2)	ZENER DIODE		
D31 -34			HSS104	DIODE		
D31 -34			1SS133	DIODE		
IC1			NJU7312L	IC(ANALOG SWITCH)		
IC1			TC9163N	IC(BILATERAL SWITCH X16)		
IC2			NJU7313L	IC(ANALOG SWITCH)		
IC2			TC9164N	IC(16CH BILATERAL SELECTOR SW)		
IC3			NJM4580L-D	IC(OP AMP X2)		
IC4			TC9213P	IC(2CH ELECTRONIC VOLUME)		
IC5 ,6			NJM4580L-D	IC(OP AMP X2)		
IC7			TC9213P	IC(2CH ELECTRONIC VOLUME)		
IC8 ,9			NJM4580L-D	IC(OP AMP X2)		
IC10			TC9213P	IC(2CH ELECTRONIC VOLUME)		
IC11			NJM4580L-D	IC(OP AMP X2)		
IC13			BA12003	IC(TRANSISTOR ARRAY)		
IC14			NJM4580D-D	IC(OP AMP X2)		
IC15			TC9184P	IC(ELECTRO TONE CONTROL)		
IC16			NJM4580L-D	IC(OP AMP X2)		
IC17			NJM4580D-D	IC(OP AMP X2)		
IC18		*	UPD78043GF-020	IC(MICROPROCESSOR)		
IC19		*	MC74HC08AF	IC(AND GATE)		
IC19			TC74HC08AF	IC(AND GATE)		
IC27			NJM4580L-D	IC(OP AMP X2)		
Q1 ,2			2SC2878(B)	TRANSISTOR		
Q3 ,4			2SA1048(Y,GR)	TRANSISTOR		
Q3 ,4			2SA1309A(Q,R)	TRANSISTOR		
Q5 ,6			2SC2878(B)	TRANSISTOR		
Q7			2SA1048(Y,GR)	TRANSISTOR		
Q7			2SA1309A(Q,R)	TRANSISTOR		
Q8 ,9			2SC2878(B)	TRANSISTOR		
Q10			2SC2003(L,K)	TRANSISTOR		
Q11 -16			2SC2878(B)	TRANSISTOR		
Q17			2SA1048(Y,GR)	TRANSISTOR		
Q17			2SA1309A(Q,R)	TRANSISTOR		
Q18			2SC2458(Y,GR)	TRANSISTOR		
Q18			2SC3311A(Q,R)	TRANSISTOR		
Q19			2SB772	TRANSISTOR		
Q20			2SC2458(Y,GR)	TRANSISTOR		
Q20			2SC3311A(Q,R)	TRANSISTOR		
DISPLAY UNIT (X14-3700-10)						
D60 -62			B30-1290-05	LED		
D63			B30-0431-05	LED(LN21CPH)		
C1 -4			CK45FF1H103Z	CERAMIC 0.010UF Z		
C5			CE04KW1A470M	ELECTRO 47UF 10WV		
C6			CK45FF1H103Z	CERAMIC 0.010UF Z		
C7 -9			CE04KW1H100M	ELECTRO 10UF 50WV		
C10			CC45FSL1H470J	CERAMIC 47PF J		
C11			CE04KW1H100M	ELECTRO 10UF 50WV		
C12			CC45FSL1H470J	CERAMIC 47PF J		
C13 -15			CE04KW1A470M	ELECTRO 47UF 10WV		
C16			CC45FSL1H180J	CERAMIC 18PF J		

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C17			CC45FSL1H220J	CERAMIC 22PF J		
C18			CK45FF1H103Z	CERAMIC 0.010UF Z		
C19			CE04KW1H100M	ELECTRO 10UF 50WV		
C20 -23			CC45FSL1H101J	CERAMIC 100PF J		
C24			CK45FF1H103Z	CERAMIC 0.010UF Z		
C25 ,26			CC45FSL1H390J	CERAMIC 39PF J		
C27			CE04KW1H100M	ELECTRO 10UF 50WV		
C28			CK45FF1H103Z	CERAMIC 0.010UF Z		
C29			CK45FF1H223Z	CERAMIC 0.022UF Z		
C30			CE04KW1H2R2M	ELECTRO 2.2UF 50WV		
C31			CK45FB1H332K	CERAMIC 3300PF K		
C32			CC45FSL1H221J	CERAMIC 220PF J		
C33			CK45FB1H561K	CERAMIC 560PF K		
C34			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C35			CK45FB1H471K	CERAMIC 470PF K		
C36			CE04KW1HR47M	ELECTRO 0.47UF 50WV		
C37			CE04KW1H100M	ELECTRO 10UF 50WV		
C38			CC45FSL1H470J	CERAMIC 47PF J		
C39			CE04KW1H100M	ELECTRO 10UF 50WV		
C40			CC45FSL1H470J	CERAMIC 47PF J		
C41			CE04KW1H100M	ELECTRO 10UF 50WV		
C42			CC45FSL1H470J	CERAMIC 47PF J		
C43			CE04KW1H100M	ELECTRO 10UF 50WV		
C44			CC45FSL1H470J	CERAMIC 47PF J		
C45			CE04KW1H100M	ELECTRO 10UF 50WV		
C46			CC45FSL1H470J	CERAMIC 47PF J		
C47			CE04KW1H100M	ELECTRO 10UF 50WV		
C48			CC45FSL1H470J	CERAMIC 47PF J		
C49			CE04KW1H100M	ELECTRO 10UF 50WV		
C50			CC45FSL1H470J	CERAMIC 47PF J		
C51			CE04KW1H100M	ELECTRO 10UF 50WV		
C52			CC45FSL1H470J	CERAMIC 47PF J		
C53 ,54			CC45FSL1H221J	CERAMIC 220PF J		
C55 -62			CE04KW1A470M	ELECTRO 47UF 10WV		
C63 ,64			CK45FF1H103Z	CERAMIC 0.010UF Z		
C65 ,66			CE04KW1A470M	ELECTRO 47UF 10WV		
C67 ,68			CK45FF1H103Z	CERAMIC 0.010UF Z		
C100			CE04KW1H010M	ELECTRO 1.0UF 50WV		
C101			C91-0085-05	CERAMIC 0.022UF N		
C102			CK45FF1H103Z	CERAMIC 0.010UF Z		
C103			C90-3213-05	ELECTRO 68UF 6.3WV		
C104			C90-1826-05	BACKUP 0.047F 5.5WV		
C105-108			C91-0769-05	CERAMIC 0.01UF K		
C112			CK45FF1H103Z	CERAMIC 0.010UF Z		
C113			CC45FSL1H330J	CERAMIC 33PF J		
C117			CK45FF1H103Z	CERAMIC 0.010UF Z		
C118			CC45FSL1H330J	CERAMIC 33PF J		
C119,120			CE04KW1H100M	ELECTRO 10UF 50WV		
C121-124			C91-0769-05	CERAMIC 0.01UF K		
C126			C90-3248-05	ELECTRO 0.1UF 50WV		
C127			CK45FF1H103Z	CERAMIC 0.010UF Z		
C128			C90-3213-05	ELECTRO 68UF 6.3WV		
J1 -3	1C		E13-0313-05	PHONO JACK(VIDEO1-4,MONITOR)		
J4	1C		E06-0409-05	CYLINDRICAL RECEPTACLE(S-OUT)		

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J5	1C		E06-0408-05	CYLINDRICAL RECEPTACLE(S-OUT)		
J6	1C		E11-0188-05	MINIATURE PHONE JACK(S.CONTRL)		
L1 ,2			L40-2201-17	SMALL FIXED INDUCTOR(22UH,K)		
X1			L77-1182-05	CRYSTAL RESONATOR(14.31818M)		
X2			L78-0272-05	RESONATOR (504K)		
X3			L78-0267-05	RESONATOR (4.194MHZ)		
CP1 ,2			R90-0832-05	MULTI-COMP 4.7KX3 J 1/6W		
CP3			R90-0811-05	MULTI-COMP 4.7KX6		
CP5			R90-0832-05	MULTI-COMP 4.7KX3 J 1/6W		
CP6			R90-0824-05	MULTI-COMP 4.7KX4		
CP7			R90-0832-05	MULTI-COMP 4.7KX3 J 1/6W		
CP8			R90-0877-05	MULTI-CAPA 220PX4		
CP10			R90-0482-05	MULTI-COMP 100KX4 J 1/6W		
CP11			R90-0803-05	MULTI-COMP 100KX7 J 1/4W		
CP12-17			R90-0875-05	MULTI-COMP 100KX15		
R95			RS14KB3A3R9J	FL-PROOF RS 3.9 J 1W		
R96			RS14KB3A6R8J	FL-PROOF RS 6.8 J 1W		
S1 -37	3B,3C		S40-1064-05	TACT SWITCH(POWER,BASS etc.)		
S40 ,41	3C		S40-1064-05	TACT SWITCH(TAPE2,MUTE)		
S38	3D	*	T99-0532-05	ROTARY ENCODER(BALANCE)		
S39	3C	*	T99-0533-05	ROTARY ENCODER(CH.LEVEL)		
S42	3C		T99-0526-05	ROTARY ENCODER(INPUT SELECTOR)		
S43	3C	*	T99-0534-05	ROTARY ENCODER(VOLUME CONTROL)		
D1 -18			HSS104	DIODE		
D1 -18			1SS133	DIODE		
D20 ,21			HZS5.1N(B2)	ZENER DIODE		
D20 ,21			RD5.1ES(B2)	ZENER DIODE		
D50 -56			HSS104	DIODE		
D50 -56			1SS133	DIODE		
D57			HZS10N(B)	ZENER DIODE		
D57			RD10ES(B)	ZENER DIODE		
D58 ,59			HSS104	DIODE		
D58 ,59			1SS133	DIODE		
ED1	3C	*	FIP30XM1AA	INDICATOR TUBE		
IC1 ,2		*	MC74HC4052N	IC(4ch MULTIPLEXER X2)		
IC1 ,2			TC74HC4052AP	IC(ANALOG MULTIPLEXER)		
IC3			MC14577BP	IC(DUAL VIDEO AMP)		
IC4 ,5			MC14576BP	IC(OP AMP X2)		
IC6			UPD6450CX-514	IC(SUPER IMPOSE)		
IC7			MM1067XD	IC(SYNC SEPARATION)		
IC8 ,9			MC74HC4053N	IC(2ch MULTIPLEXER X3)		
IC8 ,9			TC74HC4053AP	IC(ANALOG MULTIPLEXER)		
IC10-12			MC14576BP	IC(OP AMP X2)		
IC13			PST529D	IC(SYSTEM RESET)		
IC14		*	UPD78044GF-024	IC(MICROPROCESSOR)		
IC15,16		*	LC75711E	IC(DISPLAY DRIVER)		
Q1 -4			2SC2878(B)	TRANSISTOR		
Q5			2SA1048(Y,GR)	TRANSISTOR		
Q5			2SA1309A(Q,R)	TRANSISTOR		
Q6			2SC2458(Y,GR)	TRANSISTOR		
Q6			2SC3311A(Q,R)	TRANSISTOR		
Q7			2SC2003(L,K)	TRANSISTOR		
A1	3B		W02-1046-05	ELECTRIC CIRCUIT MODULE		

L:Scandinavia **K**:USA **P**:Canada
Y:PX(Far East, Hawaii) **T**:England **E**:Europe
Y:AAFES(Europe) **X**:Australia **M**:Other Areas

⚠ indicates safety critical components.

SPECIFICATIONS

AUDIO section

Total hermonic distortion
..... 0.002 % (20 Hz- 20 kHz, 1.2 V)
..... 0.002 % (1 kHz, 1.2 V)
Frequency response
LINE (CD, TAPE1, 2, VIDEO1)
..... 15 Hz- 100 kHz, + 0 dB,– 3 dB
PHONO"RIAA"response
..... 20 Hz – 20 kHz, ± 0.5 dB

Signal to noise ratio
(IHF'66)
PHONO (MM) ..... 78 dB
LINE (CD, TAPE 1~2, VIDEO 1~4) ..... 100 dB

Input sensitivity/impedance
PHONO (MM) ..... 2.5 mV/47 kΩ
LINE (CD, TAPE 1~2, VIDEO 1~4) .... 200 mV/47 kΩ

Tone control
BASS ..... ± 8 dB (at 100 Hz)
TREBLE ..... ± 8 dB (at 10 kHz)

Output level/impedance
Front channel preout ..... 1.2 V/390 Ω
Sub woofer, center
channel preout ..... 1.2 V/390 Ω
Surround channel preout ..... 1.2 V/390 Ω

VIDEO section

Television format ..... NTSC
Input level/impedance
VIDEO (Composite) ..... 1 Vp-p/75 Ω
Input (VIDEO 1, 2, 3, 4)
S-VIDEO (Luminance signal) ..... 1 Vp-p/75 Ω
(Chrominance signal) ..... 0.286 Vp-p/75 Ω
Input (VIDEO 1, 2)
Output level/impedance
VIDEO (Composite) ..... 1 Vp-p/75 Ω
output (VIDEO 1, 2, 3, MONITOR OUT 1, 2)
S-VIDEO (Luminance signal) ..... 1Vp-p/75 Ω
(Chrominance signal) ..... 0.286Vp-p/75 Ω
output (VIDEO 1, 2, MONITOR OUT)

FM tuner section

Tuning frequency range ..... 87.5 MHz-108 MHz
Usable sencitivity (MONO at 75 Ω) ..... 0.95 μV/10.8 dBf

Total hermonic distortion (at 1 kHz)
MONO ..... 0.1 % (65 dBf input)
STEREO ..... 0.2 % (65 dBf input)
Signal to noise ratio (at 1 kHz)
MONO ..... 80 dB (65 dBf input)
STEREO ..... 74 dB (65 dBf input)
Sterao separation (at 1 kHz)
1 kHz ..... 50 dB

Capture ratio (WIDE) ..... 1.0 dB

Selectivity (± 400 kHz) ..... 53 dB

AM tuner section

Tuning frequency range
10 kHz step ..... 530 kHz – 1,700 kHz

Usable sensitivity ..... 10 μV/ (400 μV/m)
Signal to noise ratio (at 30% mod. 1mV input) ..... 50 dB
Total harmonic distortion ..... 0.4 %

GENERAL

Power consumption
..... 50 W
AC outlets
SWITCHED ..... 3 (940 W max.)
Dimensions ..... W : 440 mm (17–5/16")
H : 161.5 mm (6–3/8")
D : 380 mm (14–15/16")
Weight (Net) ..... 10.5 kg (23.1lb)

KC-X1

KENWOOD follows a policy of continuous advancements in development.
For this reason specifications may be changed without notice.
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Note:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S.A. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

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